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SYSTEMS CONTROL TECHNOLOGY, INC.

2300 GENG ROAD • PO. BOX 10180 • PALO ALTO, CALIFORNIA 94303-0880 • (415) 494-2233

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RAPID AIR DEFENSE EVALUATION SYSTEM - (RAIDES)

Positional Handbook and
Database Specification
Version 3.5

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Approved by:

Peter D. Bernstein
Peter D. Bernstein
RAIDES Project Manager

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) This document was designed to provide the US Army CORPS air defenders with the necessary information to effectively use and operate the US Army's Rapid Air Defense Evaluation System (RAIDES). There are five manuals for RAIDES. RAIDES was developed by Systems Control Technology, Inc. Palo Alto, CA for the Joint Tactical Fusion Program Management Office (JTFFMO). RAIDES is a derivative of USAFE's Force Level Automated Planning System (FLAPS) and was extensively modified to incorporate a Blue versus Red situation display for the US Army air defenders. The RAIDES program consists of two major stand-alone software programs: the SUPR program which defines a 3-D real-world statespace area where the US Army air defenders would operate; and RAIDES which provides Blue survivability estimates for Red attacking forces given a specific battlefield scenario and real-world threat. This Positional Handbook contains the basic RAIDES operating instructions for the US Army's Portable Analysis Workstation (PAWS) and a description of the RAIDES data base files which are managed internally by the program and are unique to the RAIDES program. The RAIDES data base management software is a "home grown" variety due to program operating speed requirements and data base accessing.					
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SECTION 1 - System Overview

1.1 How should you use this manual?

This manual was designed to provide you with the information necessary to run the RAIDES program on your PAWS. This document does not include all of the PAWS hardware and software specific information; if you need that information, consult your PAWS documentation or contact a JTF field service representative.

This manual is broken down into sections which correspond to how you should use the RAIDES software. After your initial RAIDES training, sections of this manual may become second nature, while other sections, like the Database Specification, will always be a useful reference.

Sections 2 and 3 are the primary sources for you to get detailed instructions on how to perform a task. If you need more information about a function, Appendix A can provide the details.

If problems arise during RAIDES operation, paragraph 1.4 and Appendix B of this manual will be very useful. Appendix D contains tips about menus, and Appendix F is a quick reference guide to the menus.

Finally, you should keep three things in mind as you become an experienced RAIDES user:

1. Do not be afraid of the RAIDES software. Try the different functions. The purpose of RAIDES is to help you perform your job more efficiently.
2. The more feedback you provide to JTF and SCT about the PAWS, RAIDES, the documentation, or whatever, the better these products will become.
3. This manual is supposed to help you use RAIDES. When you use RAIDES, bring the manual. The manual won't help you if you leave it at your desk or in a foxhole.

1.2 What is the PAWS?

PAWS is the acronym for Portable ASAS/ENSCE WorkStation. The PAWS is a Microvax-based, graphics-oriented computer workstation (Figure 1.2-1) developed by the Joint Tactical Fusion Program. The entire workstation, including the computer cables, leveling base, and printer, fits into the five boxes (Figure 1.2-2), and each box is two-man portable. The workstation has two graphics monitors, a keyboard, two removable hard disk drives, line printer, work surface, and a mouse. The workstation is self-cooled by internal fans.

One monitor is usually referred to as the text graphics monitor, or text monitor. The interface menus between you and the different programs or applications on the computer will appear on the text monitor. The other monitor is referred to as the video graphics monitor, or graphics monitor. The data displayed by the programs, such as digital maps, enemy bases, or targets, will appear on the graphics monitor.

The keyboard is a VT-200 series keyboard. The layout of the keyboard, with three different sections outlined, is shown in Figure 1.2-3. The function keys are occasionally used to issue a command to the computer. The special purpose keys are used for certain types of data entry. Most of your keyboard usage will be from the alphanumeric keys, which allow you to enter data manually.

The mouse is used for all graphics input and is the primary user input device; most of your interface to the PAWS is via the mouse. The mouse has three buttons (Figure 1.2-4), and each button may perform a different function. The left button is used to select items from a menu or to graphically select data, such as a location. The center button is application dependent. The right button normally cancels the current function.

The mouse drives the movement of the cursor on the graphics screens. As you move the mouse on the work surface, the cursor symbol moves correspondingly on the screen (Figure 1.2-5). When the cursor is operating on the text monitor, its symbol is the arrow as depicted in Figure 1.2-5. When the cursor is operating on the graphics monitor, the cursor symbol is a crosshair (Figure 1.2-6).

The PAWS is a DEC Microvax II computer. The PAWS is running on the VMS operating system, version 5.02. The computer has 16 Megabytes of main memory. The approximate speed of the computer CPU is one MIPS. Each of the hard disks can store approximately 360 Megabytes of information. The hard disks are removable, which allows you to replace or store disks. The hard disks should always be removed from the computer before transporting the PAWS.

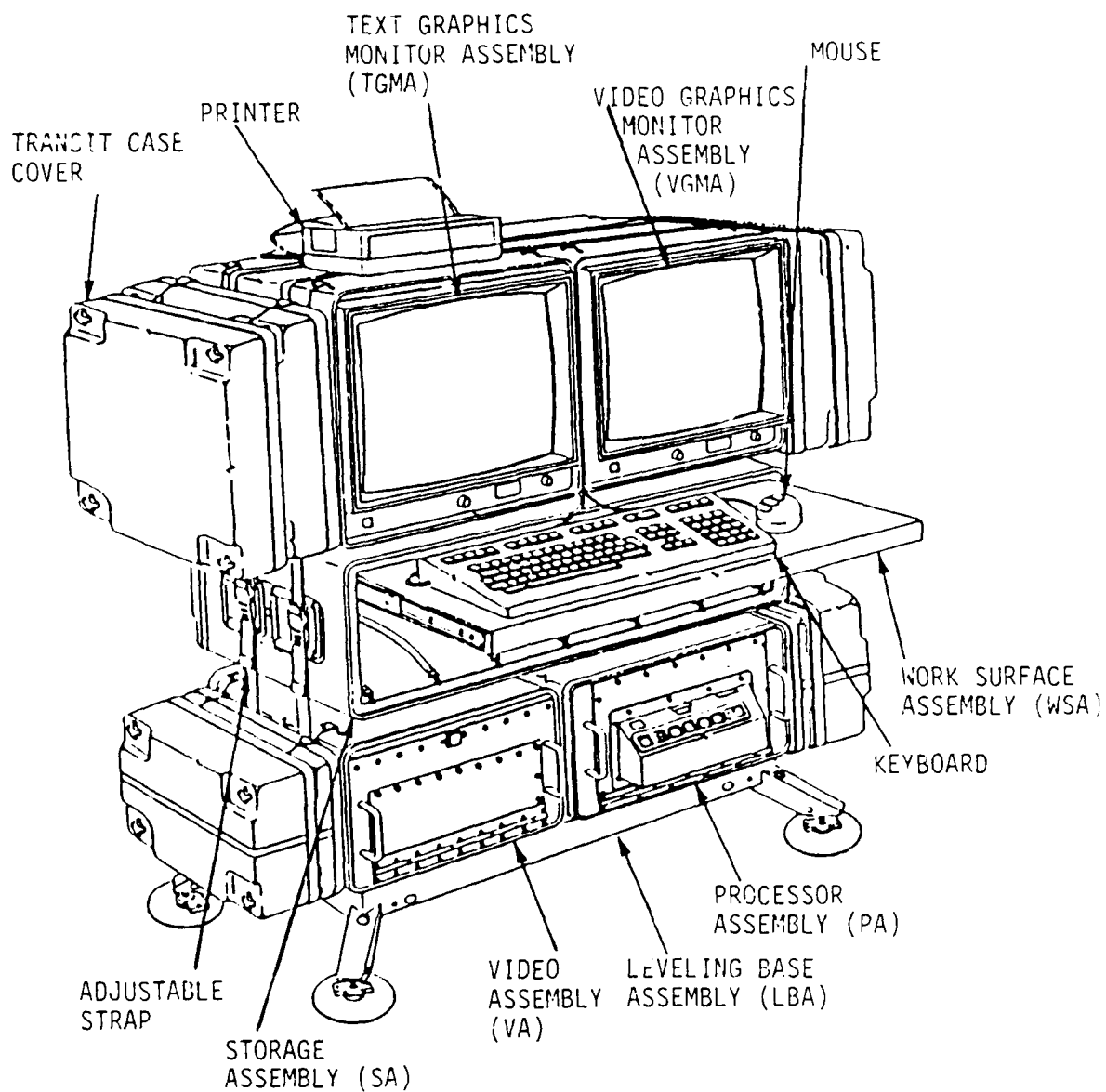


Figure 1.2-1 PAWS Workstation Configuration

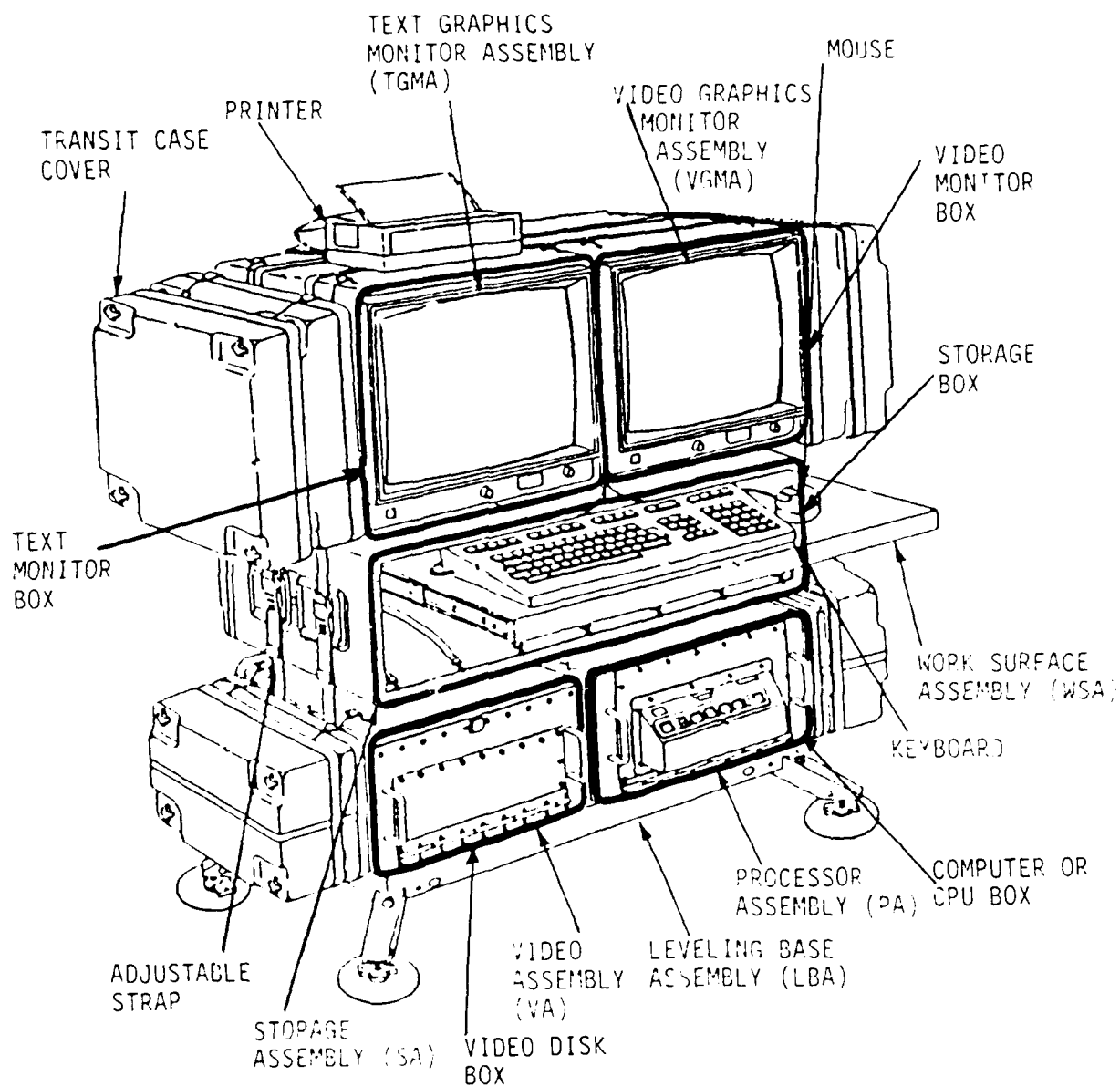


Figure 1.2-2 PAWS Workstation Configuration

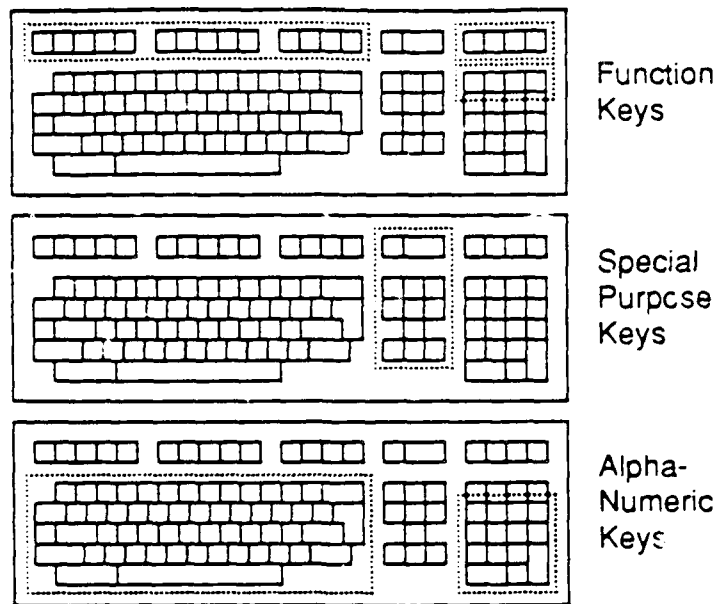


Figure 1.2-3 The VT200-Series Keyboard

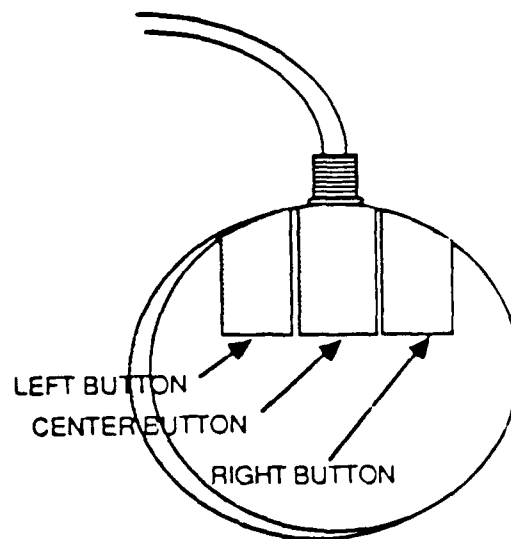


Figure 1.2-4 PAWS Mouse

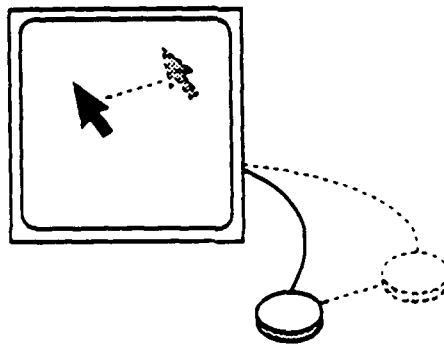


Figure 1.2-5 Relationship of Mouse Movement to Cursor Movement

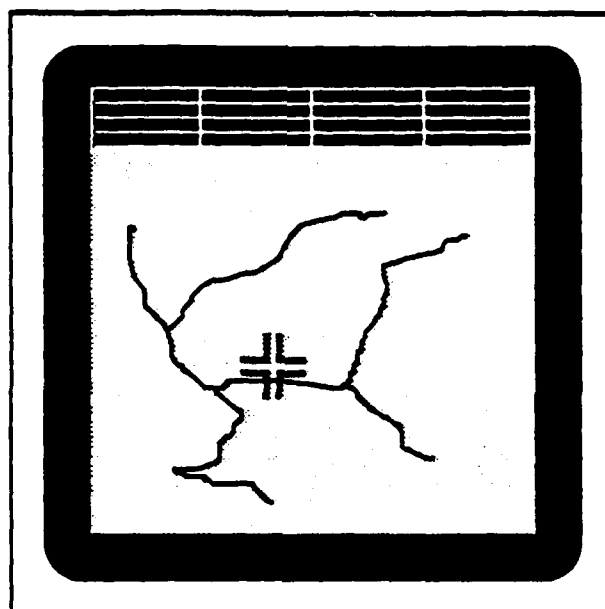


Figure 1.2-6 Cursor Symbol is a Crosshair on the Graphics Monitor

The programs you will run on the PAWS, such as RAIDES, are stored on one of the hard disks which is called the Applications disk. When you run any of the programs, the graphics monitor has a map background upon which other symbols are drawn. The maps are digital maps, which means someone took a paper map or map separate and scanned it with a camera. The camera and another computer digitize a representation of the map. The map data is stored on the other hard disk which is called the Maps disk.

Whenever you begin a working session on the PAWS, touch one of the static knobs which are located on either of the monitors immediately below the screen. Any static electricity you accumulated (for example, by walking across a carpeted floor) will be discharged.

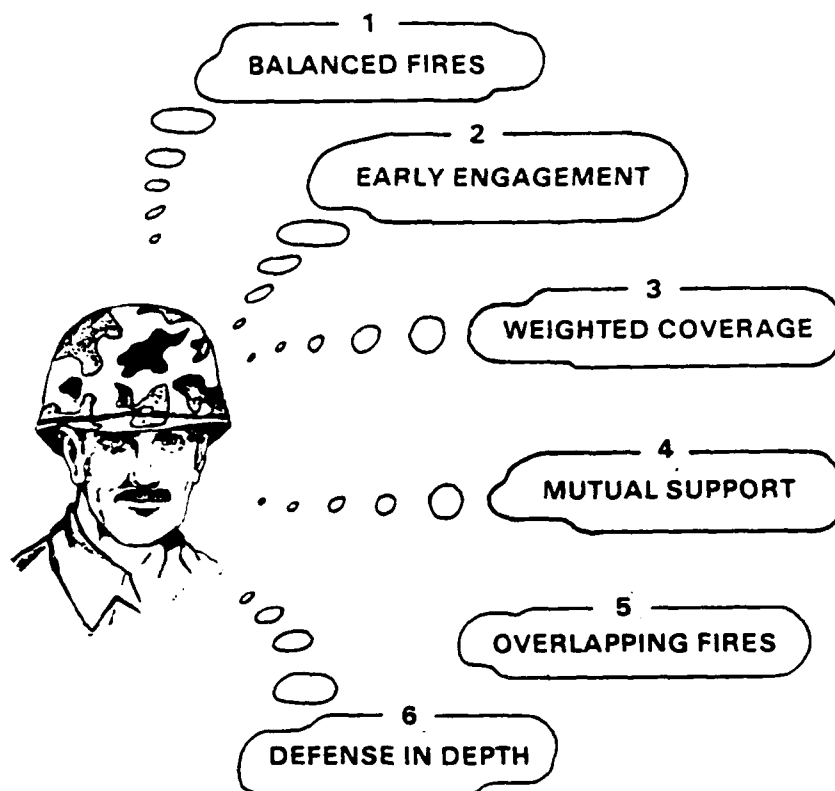
1.3 How does RAIDES apply to Air Defense planning?

Systems Control Technology, Inc. (SCT) is developing the Rapid Air Defense Evaluation System (RAIDES) to provide an automated planning tool for the air defense community to increase the effectiveness of their weapon systems. RAIDES is a rapidly-developed, functional prototype which can be used to develop a future operational system which meets the air defense planner's requirements.

The primary function of RAIDES is to help automate the input of intelligence data into the air defense planner's scenario and to assist the air defense planner in effectively employing/deploying his assets to defend selected high value areas (Figure 1.3-1). To accomplish this objective RAIDES has many capabilities.

RAIDES allows the user to input the location and types of enemy aircraft, as well as accepting an automatic data dump from LOCE. The user can input the enemy's most likely avenues of attack to the target(s). The user can display the current deployment of air defense assets and the relative lethality of the assets to the attacking aircraft.

RAIDES can automatically generate the minimum risk routes for the user defined missions in the selected air raid. The minimum risk routing incorporates performance of the vehicle and the combined, relative lethality of the fire units in a defense plan. These routes can show the planner weaknesses in his defense network.



FM 44-90-1

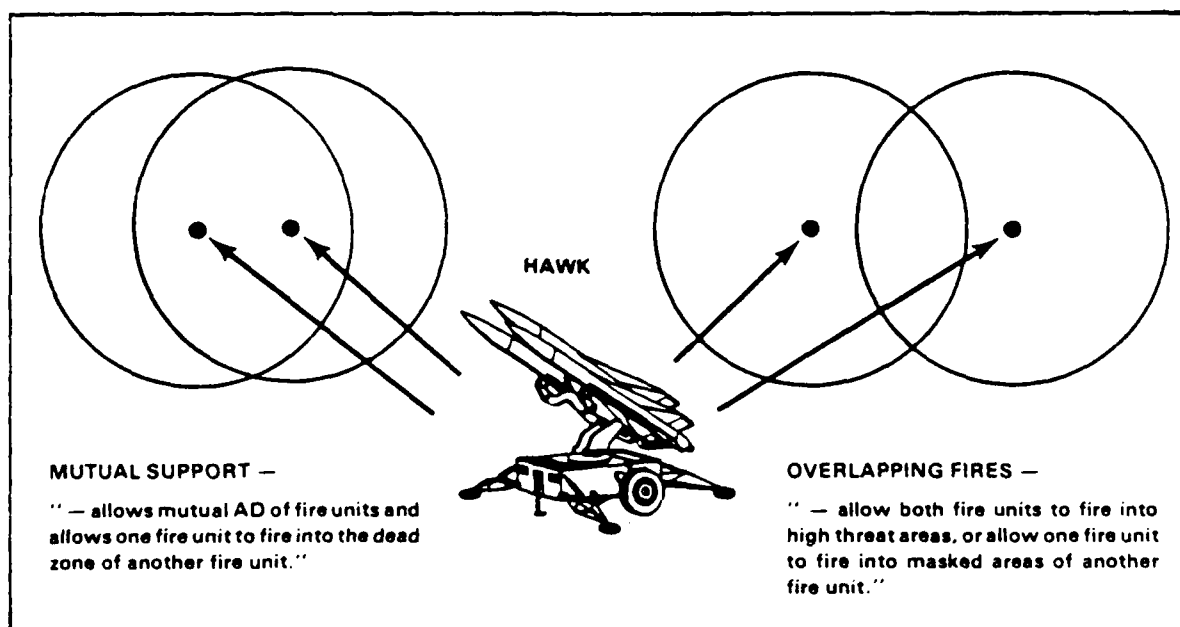


Figure 1.3-1 Employment of Assets

RAIDES also allows the user to manually create routes which model expected attack tactics. This allows the planner to observe realistic effects of his defense network against enemy raids. Additionally, the user can display the enemy raids with respect to time, which shows when and where aircraft saturation occurs.

The user can select sites which support air defense fire units. The user can display terrain contours, which adds the third dimension to the map background, and then select potential site locations. The user can display the terrain mask for the site, at any AGL altitude. The user can also check the line of sight between the site and any other location.

The user can build a number of defense plans to counter potential enemy scenarios. The user can 'what if' a defense plan by moving an individual fire unit to a site, then evaluate the effects of this fire unit on the enemy air raids. The user can continue to 'what if' fire units at the various sites until he reaches his objective.

1.3.1 What is the Rapid Air Defense Evaluation System (RAIDES)?

RAIDES comprises two main programs. The Statespace Update Program (SUPR) allows the System Administrator (SYSAD) to modify the models which represent defense assets (such as Hawk, Patriot), and modify or define the area of operation (such as Fulda gap versus Korea).

SUPR builds the statespace, which is a three-dimensional representation of the operational area. The statespace dimensions represent latitude, longitude, and altitude. There is a maximum of seven altitudes, which the SYSAD specifies for the scenario. The SYSAD also defines the latitude and longitude dimensions of each cell in the statespace (Figure 1.3.1-1).

RAIDES calculates the terrain masking effects for the location of each fire unit. Several of RAIDES algorithms, including the terrain masking algorithm, perform complex mathematical calculations to determine the effects of terrain upon the placement of fire units at sites and ultimately the effects upon the penetrating aircraft. RAIDES uses Defense Mapping Agency (DMA) Digital Terrain Elevation Data (DTED) Level I, which provides terrain data points in 100 meter intervals (approximately).

RAIDES then merges this terrain mask with the model which represents the capability of the weapon system type (Figure 1.3.1-2). The SYSAD can define the defense model or template to include regions, relative to the fire unit location, which have different levels of lethality.

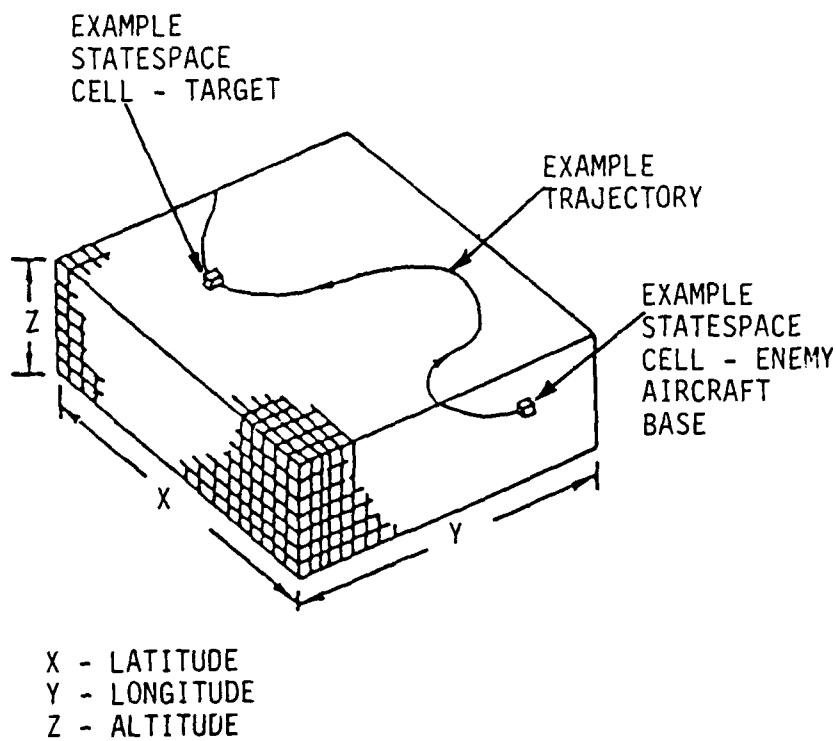


Figure 1.3.1-1 Statespace

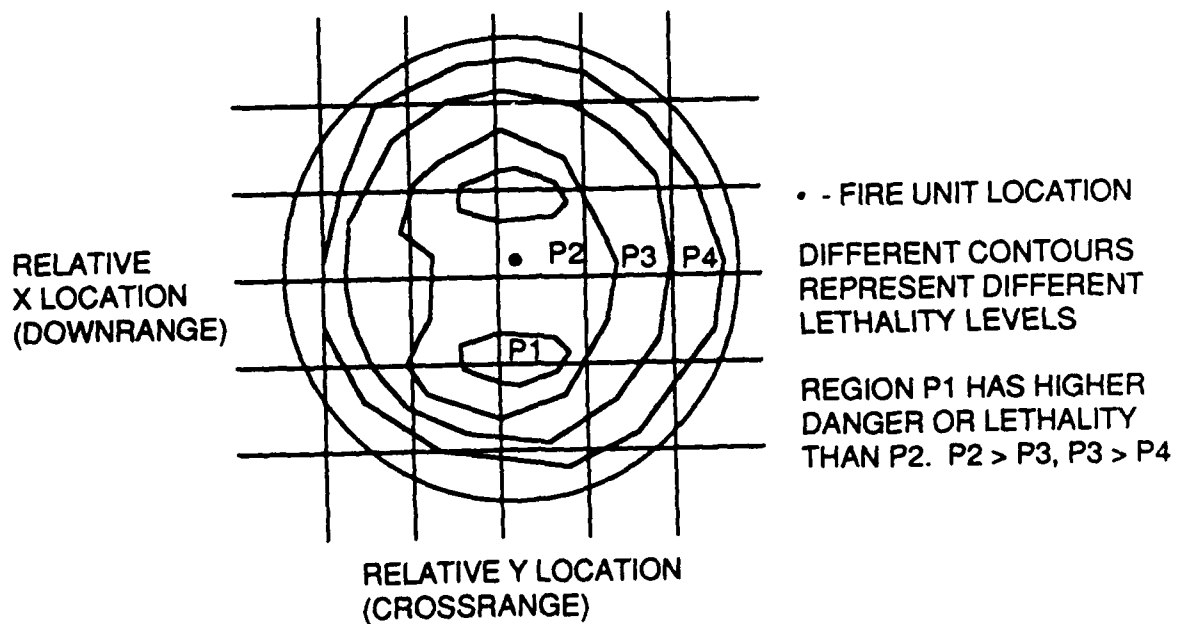


Figure 1.3.1-2 Defense Model

The defense model concept is compatible with the methodology developed and approved by the Air Force Electronic Warfare Center (AFEWC) and the USAF Tactical Air Command (TAC). These models include the maximum range of the system for multiple altitude bands and, for each band, a template to represent the relative lethality to the attacking aircraft.

The merger of the terrain mask and template results in an amount of 'danger' for each cell in the statespace. RAIDES also accounts for heading, thus each cell has a 'danger' value for each of the transitions to the eight neighboring cells. Danger is defined as the capability that active fire units in the defense plan have on the penetrating enemy aircraft. The cumulative danger in the statespace cells is used in RAIDES by the automated route generation algorithms.

The statespace information is also used to give the planner an indication whether a particular defense deployment is relatively better than another deployment.

The RAIDES database system provides the user with rapid access to the data in his current scenario. The SCT-developed database management system supports a flexible database listing capability, as well as providing a general-purpose report generator.

RAIDES has a number of switches which allow each user to receive output from RAIDES in his/her desired format. The options include Latitude/Longitude or UTM, Feet or Meters, Mils or Degrees, and Kilometers or Miles.

RAIDES also interacts with a digital map background software package. The digital maps, which are paper maps or acetate map separates, were digitized by Martin Marietta Corporation. These maps are stored on a hard disk, not on video disk, which, depending upon the user's requirements for the operational area of interest, may consume a large amount of disk space. The digital map background is an excellent geographic reference tool, and a number of utilities allow the user to rapidly and easily manipulate the map background.

RAIDES is written almost entirely in FORTRAN '77. The digital map background software and the man-machine interface software are both written in the 'C' programming language. There are approximately 75,000 executable lines of source code, excluding the data declarations statements and comments. These lines of code are contained in approximately 500 subroutines.

1.4 What should I do if something weird or unexpected happens?

Above all else, DO NOT PANIC! Relax and try to determine what is happening and why. Don't let someone rush you into compounding the problem. Remember, the documentation is a good source of information, as are other RAIDES users.

Unexpected conditions in RAIDES usually result from one of three things:

1. The RAIDES program could have a bug which means something does not work as it is supposed to work.
2. The documentation may not accurately reflect how RAIDES works.
3. You may have done something you shouldn't have done.

If a problem arises, it is important that you determine the type of problem. This can be done in the following ways:

1. It is possible that you attempted an operation out of sequence. Sections 2 and 3 of this manual show the step-by-step procedures for the various RAIDES functions.
2. If you're not sure why a particular RAIDES function is doing something, consult Appendix A of this manual which will provide you with a detailed description of the function. The problem may be that you are misinterpreting what RAIDES is doing.
3. If the problem appears to be related to the interface between you and the computer, such as the menus, you may want to consult Appendix B for helpful hints or Appendix D for more about menus.
4. If the problem appears to be a software bug in RAIDES, then you should attempt to troubleshoot the problem.

How do you troubleshoot a problem? In essence, try to perform the same function on different data or a different function on the same data. Also, consider what the computer appears to be doing.

For example, suppose you want RAIDES to display the terrain mask of a Patriot site at 20 meters AGL. If RAIDES displays nothing, what's the problem? You need to determine if the site supports a Patriot. If the site supports Patriot, then maybe the Patriot has no capability at 20M, which would be indicated by no terrain mask. You would have to check the Defense

Model table (DMDL), item FLOR, to determine the minimum altitude for which the Patriot has capability.

If the problem is neither of these, then try to display the terrain mask for another site. Also, try to display the terrain mask for a different defense asset type at the same site. If the software functions properly for these requests, then the terrain masking software is okay. You should write down the steps you went through leading up to the problem, then try to re-create the problem.

If you can re-create the problem, you may want to discuss it with another RAIDES user or your System Administrator. This is the appropriate time to contact the PAWS and/or RAIDES support group; they should be able to provide assistance. If the problem is a bug, you should fill out an STR and have your System Administrator submit it to JTFPMO. Figure 1.4-1 is a copy of an STR, so if STR forms are unavailable then copy the form from this manual.

Another type of bug is a fatal bug. Fatal bugs cause RAIDES to 'crash' or stop running. This type of bug will leave information in the text window, with the last line of output saying, "FORTRAN STOP" (Figure 1.4-2). You should write down the information indicated in Figure 1.4-2 and submit an STR.

If you use RAIDES and determine that it would be better if it had another key function, or if a function worked in a different way, what should you do? You should fill out an STR for your suggested enhancement. The more detail you can provide, the easier it is for the ADCCS in Huntsville and the developers at SCT to consider your suggestion.

1.5 How do I interact with the PAWS?

One of JTFPMO's primary concerns is to ensure that the software developed for the PAWS is easy to operate while providing maximum functional capability. It has been decided that the PAWS will use a mouse and menu driven system. This approach gives you the sense of physically controlling the computer and making it do what you want it to do without having to remember and type in complex commands. Appendix D contains more information about menus.

Computer Graphics Workstation Software Trouble Report (STR) (Instructions on Reverse)																					
ORIGINATOR'S NAME: ORIGINATOR'S COMPLETE UNIT: ORIGINATOR'S TELEPHONE: (ETS) _____ (Commercial) _____	RAM INCIDENT CONTROL NUMBER: DISK SERIAL NUMBER(S): _____ FREQUENCY: <input type="checkbox"/> EVERY TIME <input type="checkbox"/> INTERMITTENT <input type="checkbox"/> ONCE CAN THE PROBLEM BE REPRODUCED AT WILL? <input type="checkbox"/> YES <input type="checkbox"/> NO																				
APPLICATION IN USE <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> CP8M</td> <td><input type="checkbox"/> DT88</td> <td><input type="checkbox"/> TARGETS</td> <td><input type="checkbox"/> RAID8</td> </tr> <tr> <td><input type="checkbox"/> PROPHET</td> <td><input type="checkbox"/> SID</td> <td><input type="checkbox"/> TOOLS</td> <td><input type="checkbox"/> CHAP8</td> </tr> <tr> <td><input type="checkbox"/> OS</td> <td><input type="checkbox"/> LOCE</td> <td><input type="checkbox"/> JAMH/SACCS</td> <td></td> </tr> <tr> <td><input type="checkbox"/> WORD PERFECT</td> <td><input type="checkbox"/> MAP BACKGROUND</td> <td></td> <td></td> </tr> <tr> <td colspan="4"><input type="checkbox"/> OTHER _____</td> </tr> </table>	<input type="checkbox"/> CP8M	<input type="checkbox"/> DT88	<input type="checkbox"/> TARGETS	<input type="checkbox"/> RAID8	<input type="checkbox"/> PROPHET	<input type="checkbox"/> SID	<input type="checkbox"/> TOOLS	<input type="checkbox"/> CHAP8	<input type="checkbox"/> OS	<input type="checkbox"/> LOCE	<input type="checkbox"/> JAMH/SACCS		<input type="checkbox"/> WORD PERFECT	<input type="checkbox"/> MAP BACKGROUND			<input type="checkbox"/> OTHER _____				TYPE OF REPORT: <input type="checkbox"/> PROBLEM REPORT <input type="checkbox"/> SUGGESTED ENHANCEMENT <input type="checkbox"/> DOCUMENTATION ERROR APPLICATION IMPACT: <input type="checkbox"/> FATAL <input type="checkbox"/> SERIOUS <input type="checkbox"/> MODERATE <input type="checkbox"/> ANNOYING
<input type="checkbox"/> CP8M	<input type="checkbox"/> DT88	<input type="checkbox"/> TARGETS	<input type="checkbox"/> RAID8																		
<input type="checkbox"/> PROPHET	<input type="checkbox"/> SID	<input type="checkbox"/> TOOLS	<input type="checkbox"/> CHAP8																		
<input type="checkbox"/> OS	<input type="checkbox"/> LOCE	<input type="checkbox"/> JAMH/SACCS																			
<input type="checkbox"/> WORD PERFECT	<input type="checkbox"/> MAP BACKGROUND																				
<input type="checkbox"/> OTHER _____																					
DESCRIPTION OF PROBLEM:																					
SEQUENCE OF EVENTS:																					
ERROR MESSAGE(S):																					
FOR PROGRAM OFFICE/MAINTENANCE USE																					
DATE SUBMITTED: _____ SW STR NUMBER: _____																					
PERSON RESPONSIBLE FOR STR: _____ SUSPENSE FOR CLOSURE: _____																					

Figure 1.4-1 Computer Graphics Workstation Software Trouble Report (STR)

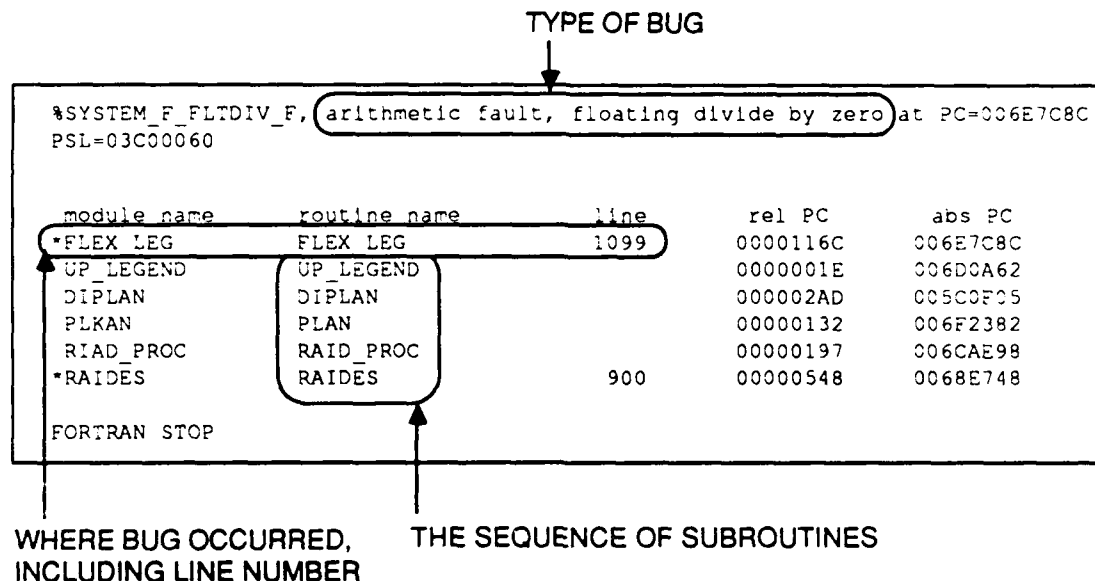


Figure 1.4-2 Text Window Output During Fatal Error

The usage of the mouse/cursor was described in 1.1. The menus fall into two major categories: pop-up menus and pull-down menus. Additionally, some applications on the PAWS use a text window to display information and to echo the data you type on the keyboard. The text window is also used to enter your username and password to start a working session on the PAWS (Figure 1.5-1).

The PAWS applications communicate with you in the form of messages that indicate what the computer is doing or what it wants from you. These messages appear in the message section of the banner (Figure 1.5-2). The messages are color-coded to indicate their severity level.

A message with the green background means the message is informational. The yellow or amber background means that something is not quite right, but the application will continue; thus, it sends you a warning. A red background means that an error has occurred and RAIDES requires a response from you. Read the message to determine the appropriate response; normally, the response is to hit the carriage return (RETURN) key. RAIDES will not continue until you respond.

BANNER

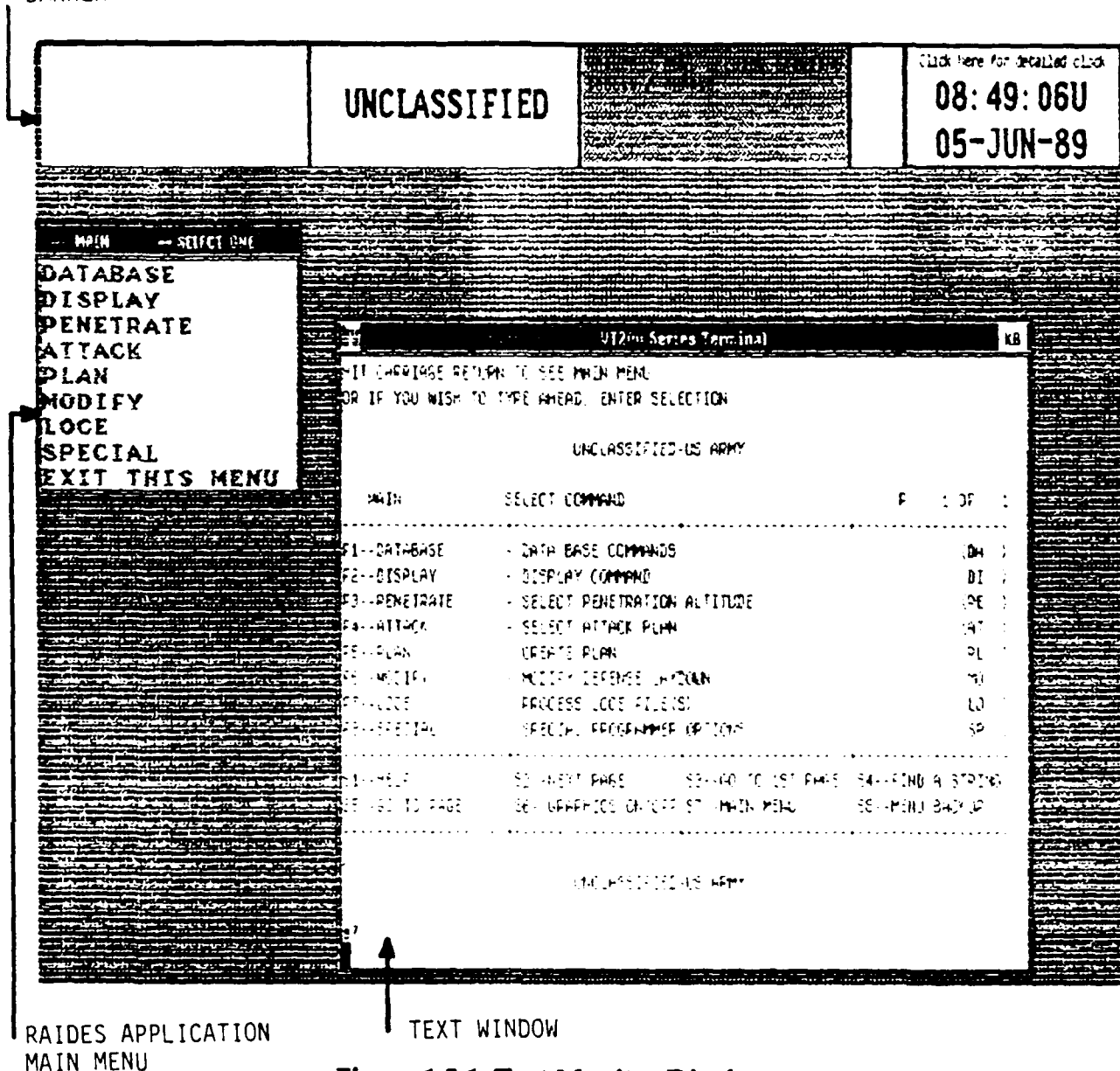


Figure 1.5-1 Text Monitor Display

CLASSIFICATION	PRINT MESSAGES	CLEAR MESSAGES	↑ + ↓	RESERVED FOR FUTURE USE	○ ⌚	TARGET	DETAILED	ALARM
	STATUS MESSAGE AREA					07:35:45		ZONE (DST)
APPLICATION						22 JUL 1989		ZULU

Figure 1.5-2 Fixed Banner

1.5.1 What are pop-up menus?

The pop-up menu can appear on either of the two monitors. The text monitor provides a blue background for the applications you will run on the PAWS. Most application pop-up menus will appear on top of the blue background. The graphics monitor provides a map background and some pop-up menus will appear on top of the map (Figure 1.5.1-1).

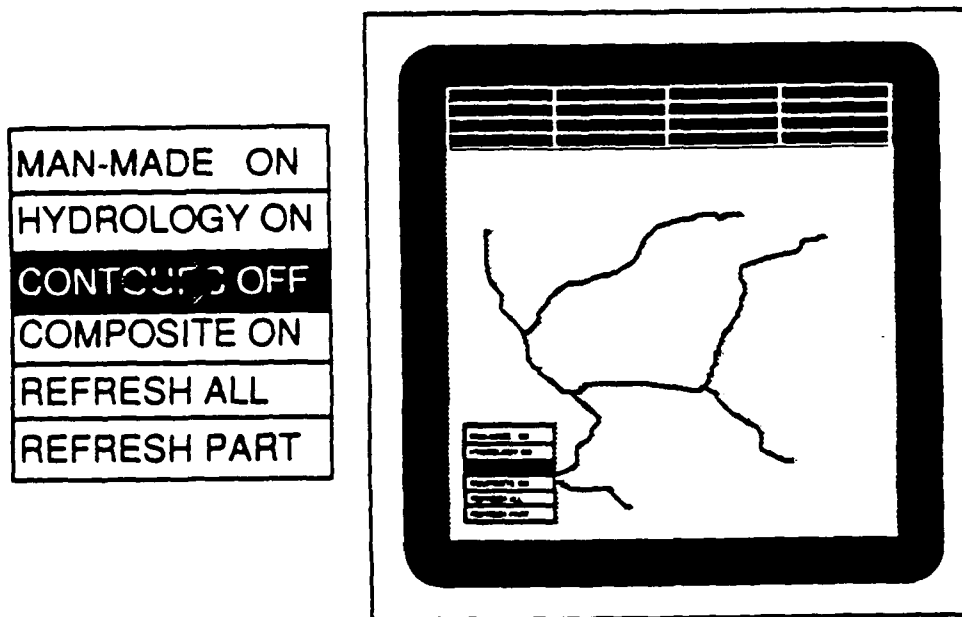


Figure 1.5.1-1 A Sample Declutter Menu and its Position on the Graphics Screen

An option is selected from a pop-up menu by moving the cursor over the menu. As you move the cursor up or down over the menu, the option immediately beneath the cursor becomes highlighted (Figure 1.5.1-2). Highlight the option you wish to select (by using the cursor), and then press and release the left mouse button. Note that it is easy to move the mouse when you push the button, which may select the wrong option.

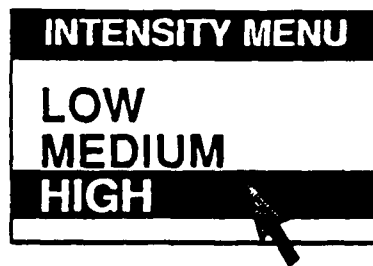


Figure 1.5.1-2 Highlighting a Menu Selection

There are many times when an application must display a long list or a large amount of data. Often, all of this data cannot fit on the screen. Thus, some menus have a scrollbar. Menus with a scrollbar display a fixed amount of data, and when scrolling occurs the newly visible data is displayed in the menu.

A vertical scrollbar appears on the right edge of the menu (Figure 1.5.1-3). The scrollbar consists of a line with an arrowhead at each end and hatch marks at each quarter of the line's length. "Behind" the line is a shaded area which indicates the portion of the data that is currently being viewed.

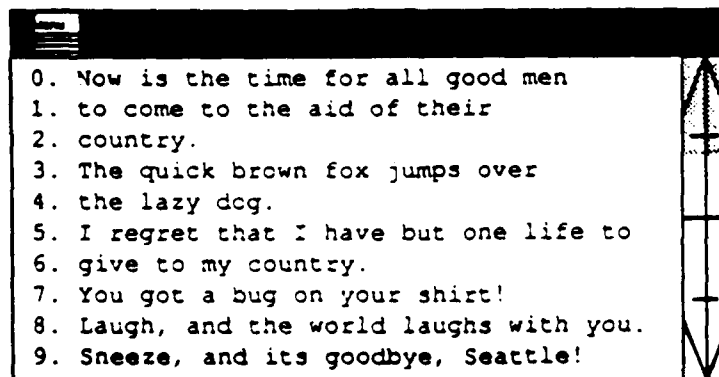


Figure 1.5.1-3 The Output of the Sample Program in a Pop-Up Menu With Scroll Bar

The more data there is, the smaller the shaded area becomes. If there is less data than the amount that can appear in the viewing area, the shaded area occupies the entire scrollbar, indicating the entire volume of data is displayed (Figure 1.5.1-4).

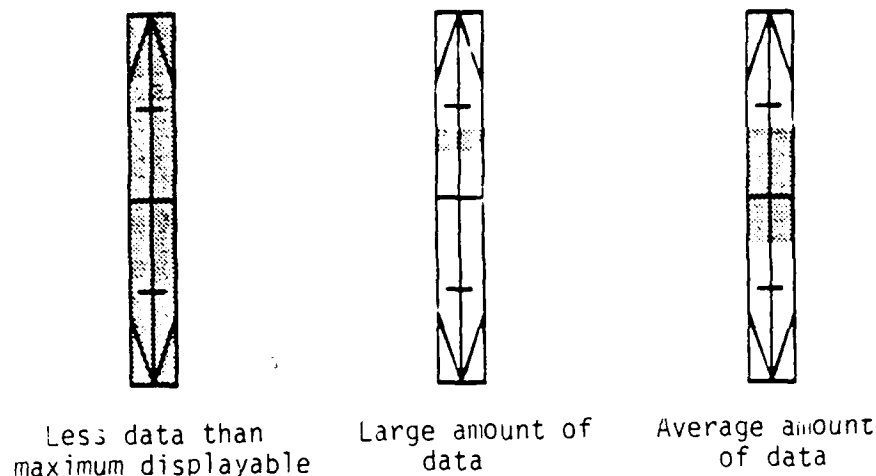


Figure 1.5.1-4 Sample Scroll Bars

As the cursor is moved over the scrollbar, the cursor changes shape. If the cursor is above the halfway point, the cursor symbol becomes an 'up-arrow,' indicating that the scroll direction is up. If the cursor is below the halfway point, the pointer becomes a 'down-arrow.'

Sometimes the scrollbar is disabled and no scrolling is allowed. If this occurs, the cursor becomes an 'x' indicating that the scrollbar is disabled. It is sometimes possible to enable scrolling: place the cursor in the black area at the top of the scrollbar and press the left mouse button.

There are two types of scrolling: relative scrolling and absolute scrolling. Relative scrolling means scrolling a certain distance relative to the point currently displayed, either above or below. Absolute scrolling means to go directly to a specific point in the menu.

To perform relative scrolling, place the cursor over the desired point of the scrollbar, then press and release the left mouse button. To perform absolute scrolling, instead of pressing the left button, press and release the center mouse button.

1.5.2 What are pull-down menus?

Pull-down menus allow you to access a large number of functions in a compact, convenient format. The first pull-down menu you will see, as a PAWS user, is the PAWS main menu (Figure 1.5.2-1). The PAWS main menu appears on the text monitor directly below the banner.

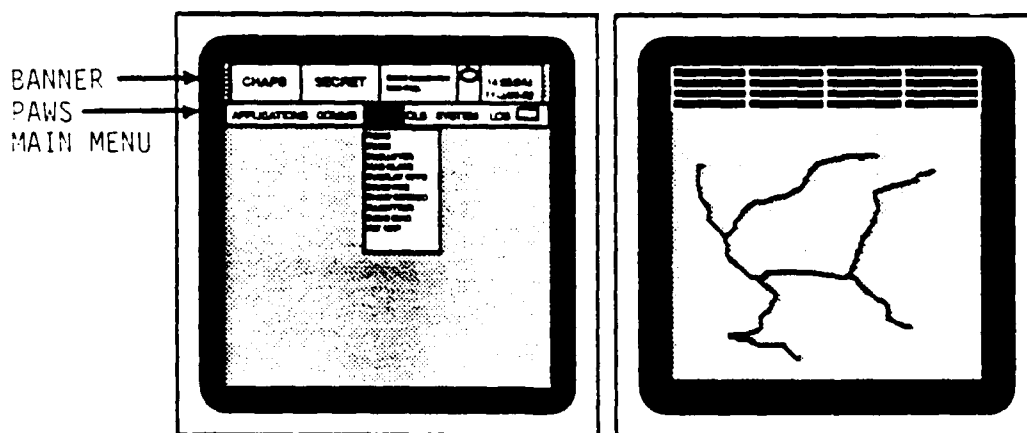


Figure 1.5.2-1 The PAWS Monitors - The Text and Graphics Screens

A pull-down menu consists of a menu bar which contains a list of primary options or categories. In Figure 1.5.2-1, APPLICATIONS is one category. When the cursor is placed on one of the categories and the left mouse button is pressed and held, a menu of functions relevant to that category appears below the category. You can then select an option from this menu by moving the cursor down the menu until the option is highlighted, then release the left button (Figure 1.5.2-2).

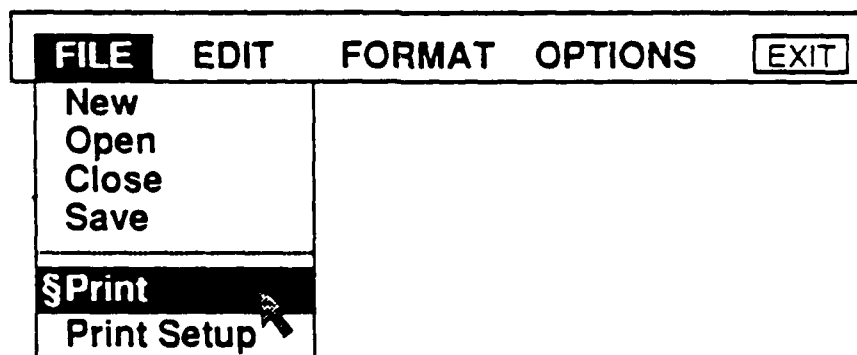


Figure 1.5.2-2 A Menu Bar With Pulldown Menu

If you pull down a menu and then decide not to make a selection, then simply move the cursor off the menu and release the left mouse button. Some options in a pull-down menu may have submenus, and these submenus behave like the pull-down menus.

Some menus contain options which cannot be selected. These options are disabled, and each disabled option appears in gray letters rather than the normal menu option color.

1.6 What do I need to know about the examples in Sections 2 and 3?

The step-by-step procedures outlined in Sections 2 and 3 show you how to perform certain functions. The following hints will be useful when you use the step-by-step instructions.

1. The RAIDES database on your PAWS may not be identical to the database from which this manual was written. Thus, try to understand what these instructions are telling you, then apply the concept to the data in your database.
2. Section 2 only describes some of the more important options which display the database. Other options are covered in Section 3.
3. Some menu options are not discussed in Sections 2 or 3. Appendix A contains detailed descriptions of every menu option in every RAIDES menu. Appendix D contains helpful tips about the menus.
4. As you become accustomed to RAIDES and its menus, you will notice that many of the menus have similar options. The similar options function alike. Thus, if you know how LOS COMM works in the SITE LOCATOR menu, then you know how it works in the FIRE UNIT menu.

SECTION 2 - RAIDES Demonstration

2.1 How do I start the PAWS?

It is assumed that your PAWS hardware is set up. If it isn't, or if you have no idea what it means to be 'set up', consult your PAWS documentation or see your System Administrator. If the computer does not respond as indicated in the following procedure, you may want to seek assistance.

- Step 1: Review Figure 1.2-2 to remind yourself of the different boxes. Review Figure 2.1-1 or your PAWS to find the location of the FOUR power buttons.
- Step 2: Push the power button of the VIDEO DISK box; the button should lock in place and light up. You should hear the PAWS fan start.
- Step 3: Push the power button of the CPU box; the button should lock in place and light up. Push the power button a second time, again making sure the button locks in place and lights up.

After several seconds one of the monitors should blink a white screen. If this does not happen, make sure that the power button is locked in and lit, for both monitors.

- Step 4: Wait for text to appear on the text monitor. The computer should ask you to enter the country code. You should enter the digit '2' for the United States and then hit the RETURN key.
- Step 5: The computer will then put up a sequence of numbers, such as 5...4...3. Wait for the following prompt: >>>. At this prompt you should type the letter 'b', then hit the RETURN key.

This step boots the computer. The computer will initialize itself.

If problems arise, shut down the PAWS. Open the door of the CPU box; the door is held shut by the screws (black knobs). The APPLICATIONS disk should be in the left disk slot, and the MAPS disk should be in the right disk slot. Consult your PAWS documentation for information regarding disk handling. Make sure to close the door of the CPU box.

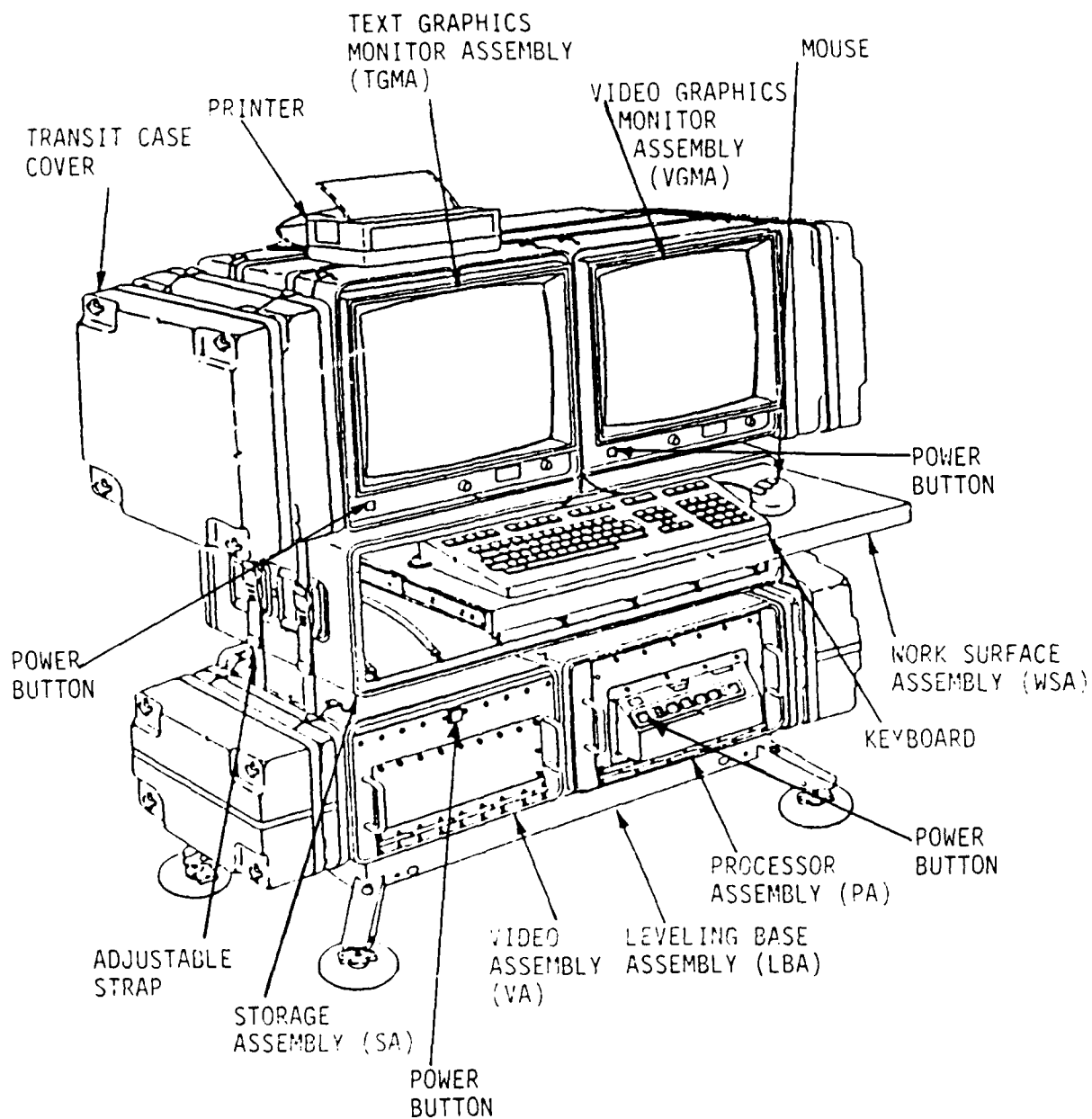


Figure 2.1-1 PAWS Workstation Configuration

Step 6: The computer will then ask you to enter the date and time. Be sure to type them in the format specified by the prompt. Hit the RETURN key when you're done.

The computer will then continue initialization. When the entire text monitor turns blue, the computer is booted. A message in a white box may appear on the blue background.

2.2 How do I get to the programs on the PAWS?

At this point, the PAWS is booted up and running. The text monitor should be blue. The next step is to let the computer know that you want to use it; this is called logging in. You will need a user name and password to login. See your System Administrator to get this information. You may want to review 1.5 to familiarize yourself with the PAWS mouse and menus.

Step 1: Place the cursor in the blue area of the text monitor. Now press the left mouse button. A small pop-up menu should appear.

Some applications use a text window, and this window will appear where you position the cursor when you login. A good place to position the cursor is the lower center portion of the screen.

Step 2: Select the "login to system" option from the menu. A larger login text window should appear.

Step 3: In the text window the computer will prompt you to enter your username. Type in your username and then hit the carriage return (RETURN) key.

Whatever you type will appear in the text window.

Step 4: The computer will then prompt you to enter your password. Type in your password and hit RETURN.

As you type the password, nothing will appear in the text window; this protects your password from unauthorized usage.

If you successfully logged in, the computer will put up a banner at the top of the text monitor, and then the PAWS main menu (Figure 1.5.2-1).

If the computer did not accept your username and password, hit the RETURN key. The computer will prompt you to enter them again.

You can try this process three times before the computer removes the login text window.

If you can't login, either try to login again, typing very carefully, or seek assistance from your System Administrator.

2.2.1 How do I run RAIDES?

- Step 1: Select the APPLICATIONS category from the PAWS main menu. Select the RAIDES option from the APPLICATIONS menu. The RAIDES pop-up menu should appear (Figure 2.2.1-1).
- Step 2: Select the RUN RAIDES option from the menu. Information should appear in the text window. A message indicating that "the RAIDES database files are being opened..." should appear in the banner.
- Step 3: The RAIDES main menu should appear in the upper left corner of the text monitor. You are now in RAIDES.

UNCLASSIFIED		SELECT FROM PAWS FOLLOWING MENU THIS SPACE IS RESERVED FOR FUTURE USE Call (703) 556-2162 for details	DETAILED ALARM 14:44:54 ROME 08-NOV-89
APPLICATIONS COMMS MAP TOOLS SYSTEM LOS			LOGOFF
RUN RAIDES SAVE LOCAL FILES RESTORE LOCAL FILES RESTORE MASTER FILES RUN DDP UTILITY EXIT	[RAIDES MAIN MENU CONTENT - REPEATED LINES]		

Figure 2.2.1-1 Top of Text Monitor Depicted with Banner, PAWS Main Menu, and RAIDES Pop-Up Menu

2.3 What can RAIDES show me?

You have reached the RAIDES main menu. Without spending the time to build a new scenario, you want to see or show the capabilities of RAIDES. For example, if a general officer wants a RAIDES demo, he probably only wants to see what RAIDES can do, not how to enter data.

If you are not familiar with the menus, you should review paragraphs 1.5 and 1.6.

RAIDES can be separated into five sections, as follows:

1. Database Management System. The Database Management System, also called the database, allows you to review and modify the contents of your current scenario. For example, you could review the batteries in your scenario and then add new batteries.
2. Utilities. The Utilities function provides you with tools, such as changing the units for distance (Kilometers - Miles), converting between Latitude/Longitude and UTM, or changing the information displayed on the map background of the graphics monitor.
3. Air Raid. Air raid allows you to model the enemy penetration tactics, and to probe the weaknesses of any network of defense assets. The routes for the enemy raids can be automatically or manually generated.
4. Site Locator. Site Locator allows you to view the location, type of defense assets supported (for example Stinger), and the terrain masking effects of the sites currently in the database. This function also allows you to rapidly select new sites.
5. Defense Plan. Defense Plan allows you to select the air defense units which are to be included in the network or plan. The unit types include brigades, battalions, batteries, and fire units. You can then deploy the units to locations which help meet your objective. The fire units can only be deployed to sites. You can also check the line of sight between units. You can evaluate your defense plan against any enemy raid. You can build and save up to five different defense plans.

Note - The capability to manipulate the map background and the displayed area on the graphics monitor have been deliberately left out of this manual. These functions are part of the PAWS system and can be accessed by selecting the MAPS category from

the PAWS main menu. For more information, see the PAWS documentation.

2.3.1 How do I process or review an air raid?

Step 1: Select the AIR RAID option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The AIR RAID menu will appear.

Step 2: Select the SELECT ATTACK RAID option from the AIR RAID menu.

AIR RAID MENU -- SELECT ONE
AIRCRAFT BEDDOWN
SELECT ATTACK RAID
CURRENT ALTITUDE (f) = 1000
AIR RAID CURRENT DEFENSE PLAN
PROCESS CURRENT RAID
EXIT MENU

Another pop-up menu will appear which contains the currently defined enemy attack raids.

Step 3: Select one of the raids. Choose NEW WAVE.

ATTACK RAIDS -- SELECT ONE	
BIG RAID	FIRST WAVE OF ENEMY
NEW WAVE	FOLLOW-ON ATTACK
EXIT MENU	

After selection of the raid, RAIDES will check the validity of the data in this raid. Note the message in the banner.

The AIR RAID menu will re-appear.

Step 4: Check the current altitude. It is 1000 feet. You want a different altitude, so select the CURRENT ALTITUDE option from the AIR RAID menu.

AIR RAID MENU -- SELECT ONE	
AIRCRAFT BEDDOWN	
SELECT ATTACK RAID	
CURRENT ALTITUDE (f) = 1000	
AIR RAID CURRENT DEFENSE PLAN	
PROCESS CURRENT RAID	
EXIT MENU	

Another pop-up menu will appear which contains the defined altitudes.

Step 5: Select the desired altitude. Choose 300 feet.

PENETRATION ALTITUDES -- SELECT ONE		
LEVEL 1	:	75 FEET
LEVEL 2	:	150 FEET
LEVEL 3	:	300 FEET
LEVEL 4	:	500 FEET
LEVEL 5	:	1000 FEET
LEVEL 6	:	1500 FEET
LEVEL 7	:	10000 FEET
EXIT MENU		

Pay attention to the units of measure for the altitude.

After selection of the altitude, the AIR RAID menu will re-appear.

Step 6: Select the PROCESS CURRENT RAID option from the AIR RAID menu.

AIR RAID MENU -- SELECT ONE	
AIRCRAFT BEDDOWN	
SELECT ATTACK RAID	
CURRENT ALTITUDE (f) = 1000	
AIR RAID CURRENT DEFENSE PLAN	
PROCESS CURRENT RAID	
EXIT MENU	

If the raids are already processed, the next menu should appear very soon.

If the raids are not processed, then RAIDES will re-process all of the raids. Messages will appear in the banner.

Step 7: Select the ROUTE option from the RAID OPTIONS menu.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

The missions in the raid will then be validated.

Step 8: Select the SHOW option from the RAID OPTIONS menu.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

The missions in the raid will be summarized in the text window, and they will be plotted on the graphics monitor.

Step 9: Select the REVIEW option from the RAID OPTIONS menu.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

This function allows you to see the flight path data for any mission in the raid, as well as showing which fire units have capability on the mission.

The TARGETS FOR RAID menu will appear.

Step 10: Select the target, or targets of the missions you want to review.
Choose GEDERN.

TARGETS FOR RAID -- SELECT ONE
REGNITZ
GEDERN
EXIT MENU

The TARGETS FOR RAID menu will re-appear with the selected option, GEDERN, highlighted. You could then select another target.

Step 11: After the target(s) of interest are chosen, select the EXIT MENU option.

TARGETS FOR RAID -- SELECT ONE
REGNITZ
GEDERN
EXIT MENU

The EXIT MENU option processes the selected target(s).

The data for each mission will appear in the text window (Figure 2.3.1-1).

If there is a large amount of data, the data will scroll off the window. To stop the scrolling, press the F1 function key in the upper left corner of your keyboard. To re-start the scrolling, press the F1 key again.

The RAID OPTIONS menu will re-appear.

Step 12: Select the TIME PHASE option from the RAID OPTIONS menu.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

TIME PHASE allows you to observe the relative positions of the enemy aircraft at various points in time during the missions.

A pop-up input menu will then appear.

ANALY -- MISSION: 00MS209

FOR TARGET: GEDERN

BASE: DRES

INGRESS/EGRESS PENETRATION CORRIDORS: NORTDOP / NORTDOP

TIME	POSITION	ALT (M)	HDG	NODE	DIST (km)	DANGER
1130	510800.0N 0134700.0E	3048.0	000	DRES	0.00	0.0000
1143	511529.5N 0105148.8E	457.2	274	NORT	203.78	0.3810
1145	511624.8N 0101803.8E	457.2	272	NORT	39.15	0.0761
1148	511202.0N 0094855.9E	457.2	256	NORT	34.74	0.0675
1151	505417.0N 0091636.2E	457.2	229	NORTDOP	49.97	18.9258
1151	505200.0N 0091440.5E	457.2	208	WAYPOINT	4.79	5.5712
1153	503600.0N 0091440.5E	457.2	180	WAYPOINT	29.63	30.8462
1155	502520.0N 0091140.0E	457.2	190	GEDERN	20.07	21.7047
1156	503600.0N 0091440.5E	457.2	010	WAYPOINT	20.07	21.7047
1158	505200.0N 0091440.5E	457.2	000	WAYPOINT	29.63	30.8462
1158	505417.0N 0091636.2E	457.2	028	NORTDOP	4.79	5.5712
1201	511202.0N 0094855.9E	457.2	049	NORT	49.97	18.9258
1204	511624.8N 0101803.8E	457.2	077	NORT	34.74	0.0675
1206	511529.5N 0105148.8E	3048.0	092	NORT	39.15	0.0761
1219	510800.0N 0134700.0E	3048.0	094	DRES	203.78	0.3810

TOTAL DISTANCE = 764.27 km

TOTAL DANGER = 155.1451

DEFENSES ENCOUNTERED BY MISSION

DEFENSE ID	MODEL ID	TYPE	POSITION	RANGE
2-45/C/1	HAWK	SAM	502539.4N 0091354.6E	17.00
2-45/B/1	HAWK	SAM	505440.9N 0091645.2E	17.00

;
;

Figure 2.3.1-1 Review of a Mission

Step 13: Type the start time for the time phased display. Type <1249>.

DEFAULT START TIME (HHMM) 1249	DEFAULT TIME INCREMENT (MM) 15

If you don't know what <1249> means, see Appendix D.

Notice that the data entry area is highlighted for the item you are currently entering (DEFAULT START TIME).

The digits you type will appear in the menu. A bell will sound if you type any invalid characters. Make sure to follow the format, HH for hours, MM for minutes.

Step 14: Now you need to enter the time increment. In the SPECIAL PURPOSE KEYS section of your keyboard (Figure 1.2-3), there is a key marked ->. Hit this key, called the right-arrow key.

The DEFAULT TIME INCREMENT section should be highlighted.

Step 15: Type the time increment for the time phased display. Type <05>.

DEFAULT START TIME (HHMM) 1249	DEFAULT TIME INCREMENT (MM) 15
1249	

The digits you type will appear in the menu under the DEFAULT TIME INCREMENT section. A bell will sound if you type any invalid characters. Make sure to follow the format, MM for minutes.

Step 16: Hit the RETURN key to enter the data.

DEFAULT START TIME (HHMM) 1249	DEFAULT TIME INCREMENT (MM) 15
1249	05

The TIME PHASE menu will now appear.

The start time, time increment, and current time will be shown in the text window.

The missions and their coordinated codes (which are on the aircraft position symbol) will also be shown in the text window.

Step 17: Select the ADVANCE option from the menu.

You may want to select this option several times to view it's full effect.

TIME PHASE MENU -- SELECT ONE
ADVANCE
REVERSE
START
INCREMENT
EXIT MENU

The displayed route data will be re-drawn to indicate the relative positions for the new current time.

The time information in the text window will also update.

Step 18: Select the INCREMENT option from the menu.

TIME PHASE MENU -- SELECT ONE
ADVANCE
REVERSE
START
INCREMENT
EXIT MENU

This step returns us to Step 13. Enter new time data.

Selecting the START option has the same effect.

Step 19: Select the EXIT MENU option from the menu.

TIME PHASE MENU -- SELECT ONE
ADVANCE
REVERSE
START
INCREMENT
EXIT MENU

The RAID OPTIONS menu will re-appear.

Step 20: Select the EXIT MENU option.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

The AIR RAID menu will re-appear.

Step 21: Select the EXIT MENU option.

AIR RAID MENU -- SELECT ONE
AIRCRAFT BEDDOWN
SELECT ATTACK RAID
CURRENT ALTITUDE (f) = 1000
AIR RAID CURRENT DEFENSE PLAN
PROCESS CURRENT RAID
EXIT MENU

The RAIDES main menu will re-appear.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

2.3.2 How do I look at the current site data?

Step 1: Select the SITE LOCATOR option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The SITE LOCATOR menu will appear.

Step 2: Select the SHOW CURRENT SITE option.

SITE LOCATOR MENU -- SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

The location and identifier of each site in the data base will be plotted. The location is symbolized by a white '+'.
The identifier will be in white letters if the site is not occupied by a fire unit in the any defense plan. The letters will be in blue if the site is occupied by a fire unit.

The short purple line originating at each site symbol indicates the primary target line.

The SITE LOCATOR menu will re-appear.

Step 3: Select the SHOW SITE COVERAGE option.

SITE LOCATOR MENU - SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

The Show Site Coverage menu will appear.

Step 4: Select the DEPLOYED ADA option.

SHOW SITE COVERAGE MENU - SELECT ONE
DEPLOYED ADA
ALL SITE
SELECT SITE
MASKING ALTITUDE (m) = 457
EXIT MENU

The terrain masks for the sites are red polygons on the graphics monitor.

The terrain mask, or radar coverage diagram, indicates where the attacking enemy aircraft could be seen if they were at the current altitude (which in this case is 457 meters).

If you don't understand the concept of a terrain mask, review Figure 2.3.2-1.

The terrain mask are displayed at the current AGL altitude, which is 457 meters.

If a defense plan is currently selected, and the defense plan contains deployed fire units, then the terrain masking coverage for the occupied sites will be displayed.

If there is no current defense plan or no deployed fire units in the defense plan, then a message will appear in the banner.

The SHOW SITE COVERAGE menu will re-appear.

TACTICAL LIMITATIONS

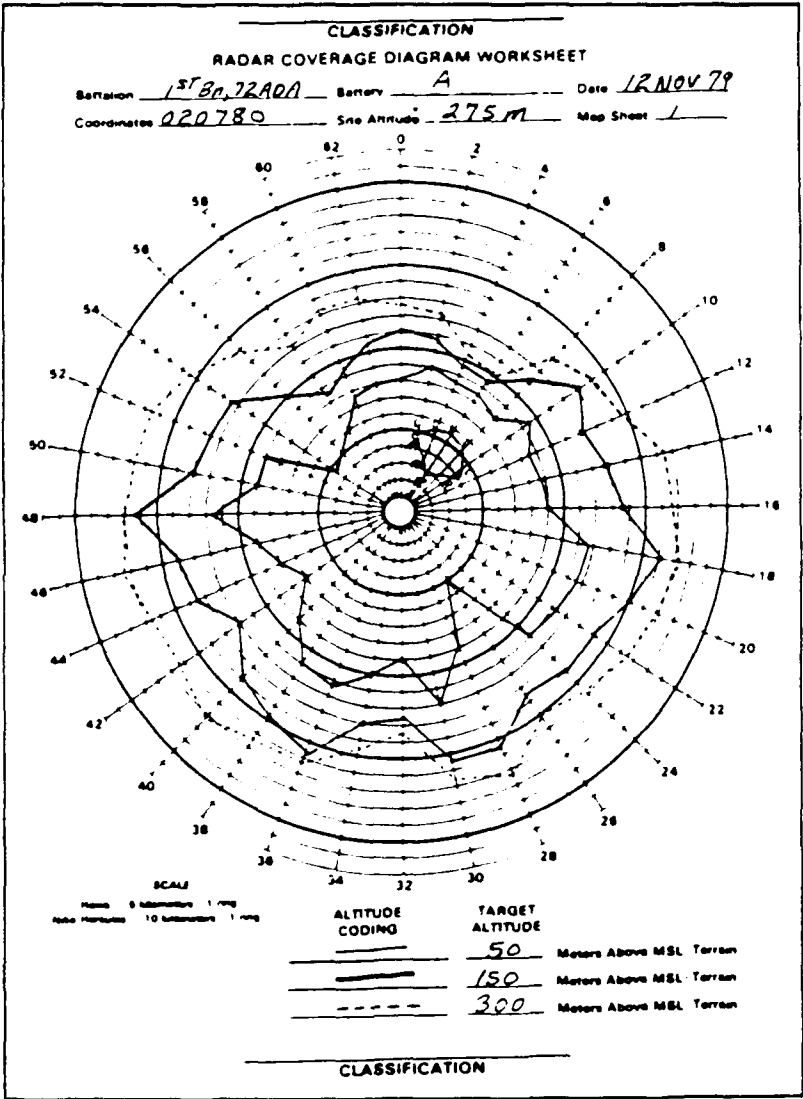
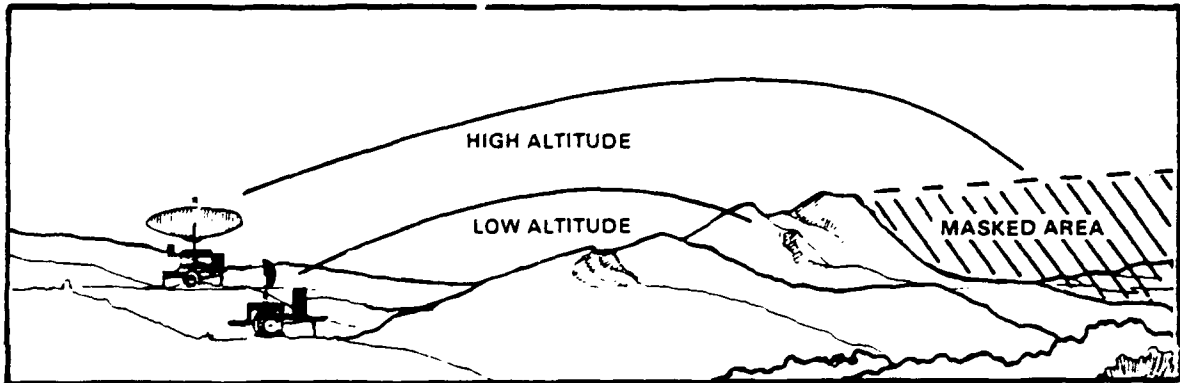


Figure 2.3.2-1 FM-44-90-1 Radar Coverage

Step 5: Select the ALL SITE option.

SHOW SITE COVERAGE MENU – SELECT ONE
DEPLOYED ADA
ALL SITE
SELECT SITE
MASKING ALTITUDE (m) = 457
EXIT MENU

The SELECT TYPE menu will appear.

Step 6: Select the type of asset that interests you. Choose STINGER.

SELECT TYPE MENU – SELECT ONE
STINGER
VULCAN
PATRIOT
HAWK
CHAP
EXIT MENU

The terrain masking coverage for each site which supports STINGER will be displayed by red polygons.

This menu contains all of the air defense asset types in the RAIDES data base.

The SHOW SITE COVERAGE menu WILL re-appear.

Step 7: Select the SELECT SITE option.

SHOW SITE COVERAGE MENU – SELECT ONE
DEPLOYED ADA
ALL SITE
SELECT SITE
MASKING ALTITUDE (m) = 457
EXIT MENU

The cursor will then appear on the graphics monitor.

A message in the banner provides further instruction.

Don't worry about placing the cursor exactly on a site as RAIDES will automatically find the site closest to the cursor location.

Step 8: Graphically select a site. Choose the site ALPHA.

The SELECT TYPE menu will re-appear.

Step 9: Select the type of defense asset that interests you. Choose CHAP.

SELECT TYPE MENU -- SELECT ONE
STINGER
VULCAN
PATRIOT
HAWK
CHAP
EXIT MENU

The terrain masking coverage for the site and selected type will then be displayed by a red polygon.

This SELECT TYPE menu contains only the air defense asset types supported by the selected site.

The SHOW MORE SITES menu will appear.

Step 10: Select the YES - REVIEW MORE SITES option.

SHOW MORE SITES? MENU -- SELECT ONE
YES - REVIEW MORE SITES
QUIT - NO MORE COVERAGES

This step will return you to step 8.

Step 11: Select the QUIT - NO MORE COVERAGES option.

SHOW MORE SITES? MENU -- SELECT ONE
YES - REVIEW MORE SITES
QUIT - NO MORE COVERAGES

The SHOW SITE COVERAGE menu will re-appear.

Step 12: Select the MASKING ALTITUDE option.

SHOW SITE COVERAGE MENU -- SELECT ONE
DEPLOYED ADA
ALL SITE
SELECT SITE
MASKING ALTITUDE (m) = 457
EXIT MENU

This step allows you to change the display AGL altitude for the terrain masks.

The MASKING ALTITUDE input menu will appear.

Step 13: Type the new AGL altitude. Choose <55>.

MASKING ALTITUDE (CURRENT = 457)
ENTER NEW ALTITUDE (m)

Note the current altitude and units, which are meters.

RAIDES will display the terrain masking coverages for the same sites but at the new altitude. Note the difference in coverage.

The SHOW SITE COVERAGE menu will re-appear.

Step 14: Select the LOS COMM option.

SITE LOCATOR MENU -- SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

The Line-Of-Sight menu will appear.

Step 15: Select the ENTER POINTS GRAPHICALLY option.

LINE-OF-SIGHT MENU -- SELECT ONE
ENTER POINTS GRAPHICALLY
ENTER POINTS TEXTUALLY
EXIT MENU

The cursor will then appear on the graphics monitor.

A message in the banner provides further instruction.

Step 16: Graphically select the first point for checking line of sight.
The cursor will remain on the graphics monitor.

A green '+' symbol will appear on the graphics monitor at the selected location.

A message in the banner provides further instruction.

Step 17: Graphically select the second point for checking line of sight.

The cursor will return to the text monitor.

A green '+' symbol will appear on the graphics monitor at the second selected location.

A green line will connect the two selected points.

Step 18: Examine the line of sight plot which appears in a window on the text monitor. See Figure 2.3.2-2.

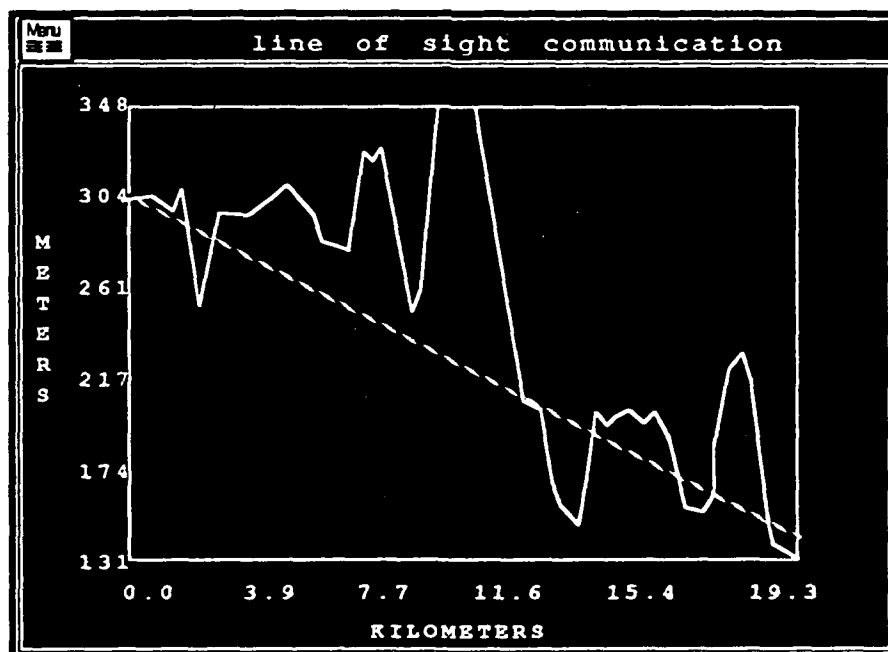


Figure 2.3.2-2 Line of Sight Plot

The line of sight and terrain will be plotted in a graph.

The green line on the plot indicates line of sight between the two points. The yellow line represents the terrain between the two points.

RAIDES assumes an antenna height of three meters at each point for line of sight.

Check the units of scale for each axis of the plot.

The SITE LOCATOR menu will re-appear.

Step 19: Select the EXIT MENU option.

SITE LOCATOR MENU -- SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

The RAIDES main menu will re-appear.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

2.3.3 How do I show a Defense Plan?

Step 1: Select the DEFENSE PLAN option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The DEFENSE PLAN menu will appear.

Step 2: Select the SELECT PLAN option from the menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The SELECT DEFENSE PLAN menu will appear.

If no defense plans exist, you will automatically go to the ID FOR NEW DEFENSE PLAN menu (this function is described in 3.3).

Step 3: Select one of the existing plans. In this case, AUTUMN is the only defense plan. Select AUTUMN.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
AUTUMN
EXIT MENU

The SELECT DEFENSE PLAN menu will re-appear with AUTUMN highlighted.

Step 4: Select the ACTIVATE PLAN option.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
AUTUMN
EXIT MENU

RAIDES will then process the plan AUTUMN. The processing will take approximately one minute.

The MODIFY DEFENSE PLAN menu will re-appear.

Step 5: Select the EXIT MENU option.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
AUTUMN
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 6: Select the SELECT/MODIFY UNITS IN PLAN option from the menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The MODIFY DEFENSE PLAN menu will appear.

Step 7: Select the SHOW CURRENT TYPES/UNITS option.

MODIFY DEFENSE PLAN MENU - SELECT ONE
SELECT TYPES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

The current units in the defense plan will appear in a table.

Step 8: Examine the table.

SELECTED UNITS/TYPES - SELECT ANY TO EXIT
TYPES SELECTED
BRIGADES SELECTED
69TH
BATTALIONS SELECTED
20BN CHAP BATL
BATTERIES SELECTED
MOOK CHAPS
FIRE UNITS SELECTED
73RD 73RD CHAPARR
EXIT MENU

The table shows the units in the plan and the operating status of the fire units.

Step 9: Select any line/item in the table.

SELECTED UNITS/TYPES -- SELECT ANY TO EXIT	
TYPES SELECTED	
BRIGADES SELECTED	
69TH	
BATTALIONS SELECTED	
20BN	CHAP BATL
BATTERIES SELECTED	
MOOK	CHAPS
FIRE UNITS SELECTED	
73RD	73RD CHAPARR
EXIT MENU	

The selection of any line/item will exit the menu.

The MODIFY DEFENSE PLAN menu will re-appear.

Step 10: Select the EXIT MENU option.

MODIFY DEFENSE PLAN MENU -- SELECT ONE
SELECT TYPES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 11: Select the SHOW DEFENSES option from the menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The SHOW DEFENSES menu will appear.

Step 12: Select the MAX RANGE option from the menu.

SHOW DEFENSES MENU -- SELECT ONE
DISPLAY ALTITUDE = 457
MAX RANGE
TERRAIN MASK
CONTOURS
EXIT MENU

Circles will appear on the graphics monitor which represent the maximum range of the operational fire units in the plan.

Sector defenses like the PATRIOT, which do not have 360 degree coverage, are represented by pie-shaped outlines.

The circles are color-coded, where each color represents a different type of defense.

The SHOW DEFENSE menu will re-appear with the MAX RANGE option highlighted to indicate they are visible.

Step 13: Select the TERRAIN MASK option.

SHOW DEFENSES MENU -- SELECT ONE
DISPLAY ALTITUDE = 457
MAX RANGE
TERRAIN MASK
CONTOURS
EXIT MENU

Red polygons will appear on the graphics monitor which represent the terrain masks for each operational fire unit in the plan.

The terrain masks are for the current AGL altitude, which is 457 meters.

Inside the terrain masking polygon(s), for each fire unit, is where the fire unit can have 'see' enemy aircraft at the current AGL altitude.

The SHOW DEFENSE menu will re-appear with the TERRAIN MASK option highlighted to indicate they are visible.

Step 14: Select the DISPLAY ALTITUDE option.

SHOW DEFENSES MENU -- SELECT ONE	
DISPLAY ALTITUDE (m)	= 457
MAX RANGE	
TERRAIN MASK	
CONTOURS	
EXIT MENU	

The PENETRATION ALTITUDES menu will appear.

Step 15: Select one of the defined altitudes. Choose Level 3.

PENETRATION ALTITUDES -- SELECT ONE	
LEVEL 1	: 15.24 METERS
LEVEL 2	: 30.48 METERS
LEVEL 3	: 91.44 METERS
LEVEL 4	: 152.40 METERS
LEVEL 5	: 304.80 METERS
LEVEL 6	: 457.21 METERS
LEVEL 7	: 3048.04 METERS
EXIT MENU	

The MAX RANGE circles and TERRAIN MASKS will be re-drawn for the new AGL altitude.

The SHOW DEFENSES menu will re-appear.

Step 16: Select the CONTOURS option.

SHOW DEFENSES MENU -- SELECT ONE	
DISPLAY ALTITUDE (m)	= 91
MAX RANGE	
TERRAIN MASK	
CONTOURS	
EXIT MENU	

The DANGER CONTOURS menu will appear.

Step 17: Type the number of levels you want to define. Type <0>.

DANGER CONTOURS
ENTER NUMBER OF LEVELS (0-6)

Zero instructs the computer to use the default levels. Any time you enter a non-zero number, the new levels become the defaults.

The danger contours will be plotted on the graphics monitor.

The levels are represented by colors ranging from blue to white. The lighter the color the more danger to the attacking aircraft.

The legend will be updated to show the levels plotted.

The SHOW DEFENSES menu will re-appear with the CONTOURS option also highlighted.

Step 18: Select the EXIT MENU option from the menu.

SHOW DEFENSES MENU -- SELECT ONE
DISPLAY ALTITUDE (m) = 91
MAX RANGE
TERRAIN MASK
CONTOURS
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 19: Select the MOVE FIRE UNIT option from the menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The MOVE FIRE UNIT menu will appear.

Step 20: Select the desired unit. Choose 73RD.

MOVE FIRE UNIT -- SELECT ONE	
1ST	1ST HAWK
73RD	73RD CHAPARRAL
EXIT MENU	

The FIRE UNIT menu will appear.

Step 21: Select the SHOW FIRE UNIT COVERAGE option from the menu.

73RD FIRE UNIT MENU -- SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS: NOT DEPLOYED	
SAVE CHANGES	
EXIT MENU	

The SHOW DEFENSES menu will appear.

Step 22: Select the TERRAIN MASK option.

SHOW DEFENSES MENU -- SELECT ONE	
DISPLAY ALTITUDE (m) = 91	
MAX RANGE	
TERRAIN MASK	
CONTOURS	
EXIT MENU	

The terrain masking coverage for the fire unit 73RD will be displayed on the graphics monitor as red polygons.

The SHOW DEFENSE menu will re-appear with the TERRAIN MASK option highlighted to indicate it is visible.

Step 23: Select the MAX RANGE option.

SHOW DEFENSES MENU -- SELECT ONE	
DISPLAY ALTITUDE (m) = 91	
MAX RANGE	
TERRAIN MASK	
CONTOURS	
EXIT MENU	

The maximum range envelope for the fire unit 73RD will be displayed on the graphics monitor as a colored circle.

The SHOW DEFENSES menu will re-appear with the MAX RANGE option also highlighted.

Step 24: Select the EXIT MENU option.

SHOW DEFENSES MENU -- SELECT ONE
DISPLAY ALTITUDE (m) = 91
MAX RANGE
TERRAIN MASK
CONTOURS
EXIT MENU

The FIRE UNIT menu will re-appear.

Step 25: Select the LOS COMM option from the menu.

73RD FIRE UNIT MENU -- SELECT ONE
SHOW FIRE UNIT COVERAGE
MOVE FIRE UNIT
LOS COMM
STATUS: OPERATIONAL
SAVE CHANGES
EXIT MENU

The message in the PAWS banner will prompt you

Step 26: Graphically select the second location for checking line of sight.

The cursor should be on the graphics monitor, depicted as a crosshair.

Press the left mouse button.

The line of sight window will appear on the text monitor.

The FIRE UNIT menu will re-appear.

Step 27: Select the EXIT MENU option.

73RD FIRE UNIT MENU -- SELECT ONE
SHOW FIRE UNIT COVERAGE
MOVE FIRE UNIT
LOS COMM
STATUS: OPERATIONAL
SAVE CHANGES
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 28: Select the EXIT MENU option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The RAIDES main menu will re-appear.

2.3.4 How can I change the units of displayed data?

Step 1: Select the UTILITIES option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The UTILITIES menu will appear.

Step 2: Select the SET UP UNITS option from the menu.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

Step 3: Select the type of unit you want to change. You want the altitude units to be in FEET instead of METERS, so choose METERS.

SET UP UNITS MENU -- TOGGLE ONE
METERS
MILES
UTM
DPA ROUTE
EXIT MENU

The options in this menu are of a type called 'toggle' options. Toggle options show you the current setting or mode, and if you select one of these options, the setting/mode is set to the opposite state.

All altitude and elevation units will now be output to you in FEET.

The SET UP UNITS menu will re-appear, with the altitude/elevation units set to FEET.

Step 4: Now you want to change the distance units from MILES to KILOMETERS. Select MILES.

SET UP UNITS MENU -- TOGGLE ONE
FEET
MILES
UTM
DPA ROUTE
EXIT MENU

All distance units will now be output to you in KILOMETERS.

The SET UP UNITS menu will re-appear, with the distance units set to KILOMETERS.

Step 5: Select the EXIT MENU option.

SET UP UNITS MENU -- TOGGLE ONE
FEET
KILOMETERS
UTM
DPA ROUTE
EXIT MENU

The UTILITIES menu will re-appear.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

2.3.5 How can I convert UTM coordinates to Latitude/Longitude, or vice-versa?

Step 1: Get to the UTILITIES menu.

Step 2: Select the COORDINATE CONVERSION option.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

A prompt will appear in the text window.

Step 3: Hit the RETURN key.

A text menu will appear in the text window.

Step 4: Type in the location coordinates, using one of the formats listed in the menu. Type <503000.0N 0102200.0E>

RAIDES will output the UTM coordinates of the point, as well as several other formats.

Step 5: Type <S7>.

Consult Appendix D if you don't understand <S7>.

The UTILITIES menu will re-appear.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

2.3.6 What data can be shown in UTILITIES?

Step 1: Get to the UTILITIES menu.

Step 2: Select the DISPLAY OPTIONS option.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

The DISPLAY OPTIONS menu will appear.

Step 3: Select the LEGEND option.

DISPLAY MENU -- SELECT ONE
LEGEND
DRAW
BASE IDS
TARGET IDS
PENE COR IDS
EXIT MENU

The legend will disappear from the text monitor.

The DISPLAY menu will re-appear with LEGEND no longer highlighted, which indicates it is not visible.

Step 4: Repeat Step 2.

The legend re-appears on the text screen. Except for the DRAW option, all options in this menu are toggle options.

The DISPLAY menu will re-appear with LEGEND highlighted, which indicates it is visible.

DISPLAY MENU -- SELECT ONE
LEGEND
DRAW
BASE IDS
TARGET IDS
PENE COR IDS
EXIT MENU

Step 5: Select the EXIT MENU option.

DISPLAY MENU -- SELECT ONE
LEGEND
DRAW
BASE IDS
TARGET IDS
PENE COR IDS
EXIT MENU

The UTILITIES menu will re-appear.

Step 6: Select the EXIT MENU option.

UTILITIES MENU -- SELECT ONE
DISPLAY OPTIONS
SET UP UNITS
COORDINATE CONVERSION
PROCESS ADA STRUCTURE MODS
EXIT MENU

The RAIDES main menu will re-appear.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

2.3.7 How do I stop or exit RAIDES?

Step 1: Get to the RAIDES main menu.

Step 2: Select the EXIT MENU option.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The QUIT menu will appear.

Step 3: Select the YES - I WANT TO QUIT option.

QUIT MENU -- SELECT ONE
YES - I WANT TO QUIT
OOPS - RETURN TO MAIN MENU

The RAIDES program will gracefully shut itself down.

Some text will appear in the text window.

The RAIDES pop-up menu, as depicted in Figure 2.2.1-1, will become active again.

Step 4: Select the EXIT option from the RAIDES pop-up menu.

The RAIDES pop-up menu will disappear. The text window will disappear. Only the banner and the PAWS main menu will be on the text monitor.

You are now out of RAIDES.

2.4 How do I show RAIDES to someone else?

Suppose a general officer wants a RAIDES demonstration. What should you do? Faking an illness probably won't work. You should not give a RAIDES demo until you feel comfortable with RAIDES. Thus, you need to understand how RAIDES works and what it does before you can demo it.

Most demos are relatively short and hence only show what the system can do, not how it is done. These demos are usually five to thirty minutes in length. This type of demo corresponds to the type of information presented in Section 2, and some of the less time consuming tasks in Section 3 (such as selecting a potential site).

Hints for a short demo:

1. Before the demo, try to find out what the person wants to see. No two demos are ever the same.
2. Before the demo, write down a script of the functions you will demo. You can use the script to practice, and if necessary, to do the demo.
3. Practice the demo script. Make sure the data you want to show already exists in the database. You probably won't have time during the demo to generate new data.
4. During your practice demos, think of the words you will use to describe what you are demonstrating. If you can't find the right words, consult this manual.
5. Time your practice demos. Try not to exceed the allotted time.
6. During every demo that has ever been given, something unexpected happens. It may be a question you can't answer. Be aware of this. There's not much you can do about it, so don't panic.
7. Bring this manual to the demo. Some people like to see the supporting documentation. Also, you may need it.

Occasionally you will be asked to give a demo which shows how RAIDES works. The person has probably heard about RAIDES or already seen the short demo. This person wants to see functions like building a defense plan. This type of demo can last anywhere from five minutes to several hours, depending upon what the person wants to see.

It is difficult to prepare for this type of demo. Sometimes the person will tell you exactly which functions he wants to see. You can then practice these functions. Otherwise, the only preparation that can help you is to run RAIDES until you feel comfortable. Hints (6) and (7) from above also apply to long demos.

2.5 How do I shut down the PAWS?

It is assumed that you have powered up your PAWS. The shutdown procedures cover two cases; how to shut down when you couldn't boot up the PAWS, and how to shut down when you are done with the PAWS (usually at the end of the day).

2.5.1 How to shut down the PAWS when you couldn't properly boot up the PAWS.

Step 1: Review Figure 1.2-2 to remind yourself of the different boxes. Review Figure 2.1-1 or your PAWS to find the location of the FOUR power buttons.

The text monitor of the PAWS should have a black background. If the text monitor has the blue background, see the other shutdown procedures.

There is probably some text displayed on the text monitor.

Step 2: Look at the CPU box. There is a row of buttons on this box. Find the button marked "CPU HALT". Push this button.

Step 3: Push the POWER button of the CPU box.

The light on this button should turn off.

Step 4: If the CPU HALT button is lighted, push the CPU HALT button again.

Step 5: Look at the VIDEO DISK box. Push the POWER button of the VIDEO DISK box.

The light on this button should turn off.

The PAWS fans should stop.

The PAWS is shutdown.

2.5.2 How to shutdown the PAWS at the end of a working session.

You have just finished running RAIDES. Only the banner and the PAWS main menu appear on the text monitor.

Step 1: You need to exit from the PAWS main menu. Place the cursor over the EXIT option (at the far right of the menu).

Step 2: Press and hold down the left mouse button.

Step 3: While holding the left button down, press the center mouse button.

Release both buttons.

The PAWS main menu and the banner should disappear.

The text monitor should be entirely blue.

Step 4: Press the left mouse button.

The small login window should appear.

Step 5: Select the SHUTDOWN WORKSTATION option.

A text window will be created.

Step 6: The PAWS will ask if you really want to shutdown. Type <Y>.

The PAWS may also ask if you have made your log book entry. You will either have to respond with <Y> or just the RETURN key.

Step 7: Wait. The PAWS will shut itself down.

When the PAWS is finished, the text monitor will be black and the last text output will be "SHUTDOWN."

Step 8: Look at the CPU box. Push the POWER button of the CPU box.

The light on this button should turn off.

Step 9: Look at the VIDEO DISK box. Push the POWER button of the VIDEO DISK box.

The light on this button should turn off.

The PAWS fans should stop.

The PAWS is shutdown.

SECTION 3 - RAIDES Exercise

3.1 Reviewing the scenario.

Someone above you in the chain of command comes to you with some planning information. He wants you to use RAIDES, enter the data, and meet the objectives. How should you proceed?

Step 1: Review the information.

The planning data or scenario is:
AIR RAIDS

Raid-1

1 mission from Haina air base (HAB).

Target is assembly area (ASY1) in the vicinity of MA69005450.

Mission will involve 8 Mig-27 (FLO/D) aircraft delivering napalm and cluster bomb units. Aircraft are from the 17th Regiment of the 1st Fighter-Bomber Division.

Aircraft will fly toward the FLOT at 500m AGL and descend to 150m AGL as they cross the FLOT. Penetration altitude to the target will be 150m.

Any penetration corridor may be used.

Time on target is 0800 hours. Time on target window is 15 minutes.

Raid-2

1 mission from highway strip 2 (HWS2).

Target is main supply route (MSR3) as represented by highway interchange.

Mission will involve 4 Su-24 (FEN/E) aircraft carrying rockets and bombs. Aircraft are from the 23rd Regiment of the 3rd Fighter-Bomber Division.

Aircraft will fly toward the FLOT at 500m AGL and descend to 150m AGL as they cross the FLOT. Penetration altitude to the target will be 150m.

Any penetration corridor may be used.

Time on target is 1630 hours. Time on target window is 15 minutes.

Raid-3

1 mission from Haina air base (HAB).

Target is main supply route (MSR4) as represented by highway interchange.

Mission will involve 4 Su-24 (FEN/E) aircraft carrying rockets and bombs. Aircraft are from the 23rd Regiment of the 3rd Fighter-Bomber Division.

Aircraft will fly toward the FLOT at 500m AGL and descend to 150m AGL as they cross the FLOT. Penetration altitude to the target will be 150m.

Any penetration corridor may be used.

Time on target is 1700 hours. Time on target window is 30 minutes.

RED AIR BASES

			FLO/D	FEN/
Haina	HAB	PB04504970	12 Mig-27	8 Su-24
Highway strip 2	HWS2	PB22301100	4 Mig-27	4 Su-24

TARGET AREAS (in order of priority)

Main supply route	MSR3	MA80504650
Assembly area	ASY1	MA69005450
Main supply route	MSR4	MA98505400

FLOT, Corps and Division Boundaries and Avenues of Approach

FLOT: NB50003000 NA60005000

IFF-ON: NB50013000 NA60015000

IFF-OFF: NB49995000 NA59995000

Division Boundaries:	NA50008500 (NE)
	NA60005000 (SE)
	NA00003000 (SW)
	MA90006500 (NW)

Corps Boundaries:	NB50003000 (NE)
	NA60005000 (SE)
	MA60002000 (SW)
	MB45001000 (NW)

PENETRATION CORRIDORS/AVENUES OF APPROACH

Penetration corridor - 1: Southern corridor, crosses FLOT just north Bad Bruckenau and the Sinn River.

P2A1: NA90009000 NA57007600 NA50007250

BLUE FORCES

35th ADA Brigade

1-52 ADA Battalion containing 1 Hawk battery with 2 platoons.
3-2 ADA Battalion containing 1 Chaparral battery with 3 platoons.

Locations of Unit Headquarters

35th ADA Brigade HQ: MA60003950
1-52 Battalion HQ: MA82005900
BATTERY HQ: MA87005200
3-2 Battalion HQ: MA94004950
Battery HQ: MA85004550

I Corps Mission

Attack red forces with intermediate objectives of Meiningen and an ultimate objective of Goda.

Commander's Intent:

To accomplish air defense using an early engagement defense with weighted coverage along the primary avenue of approach.

Step 2: Start the PAWS and get into RAIDES.

Step 3: Assess the information provided in the scenario. Use the RAIDES database description (section 4.3) to determine how this data could fit into RAIDES.

For example, the three Air Raids should be entered in the RAID table.

The two Red Air Bases should be entered in the BASE table. Note that these bases support several types of aircraft. For each type of aircraft in your scenario (in this case FLO/D and FEN/E), there must be a model of the aircraft in the ACFT table.

The three Target Areas should be entered in the TGT table.

The FLOT, IFF-ON, and IFF-OFF items all belong in the FLOT table.

The Corps and Division boundaries do not fit into RAIDES. However, you could draw these items by entering the MAPS option in the PAWS main pull-down menu, then select the DRAW function. See the PAWS documentation for more information.

The one penetration corridor belongs in the PCOR table.

The one brigade belongs in the BRIG table.

The two battalions belong in the BATL table.

The two batteries belong in the BATT table.

The five platoons belong in the FIRU table. Platoons are not necessarily the same as a fire unit. Thus, you could make the platoon equal to one fire unit, or enter the total number of fire units in the platoon.

The Corps mission does not fit into RAIDES.

You will build sites and a defense plan to meet the commander's objective.

Step 4: *If other information is provided in your scenario, you should review the other RAIDES tables to determine if the additional information fits into RAIDES.*

3.2 How do I get the data into RAIDES?

The PAWS should be booted up and you should be looking at the RAIDES main menu. This section will show you how to break up the planning data logically and enter it into the database. If you are unfamiliar with the database, you should read 4.1 of this manual.

This section does not outline the steps for the changes/additions to every table. If you understand how the basic database functions work, and you learn how to outline your scenario thoroughly, then you can apply these few examples to all modifications of the database.

Hints for building a new scenario:

1. Assess the planning data. What data can be used in RAIDES? Which tables does this data fit into?

2. Use the DATABASE SHOW function to determine if any of the scenario data is already in the database.

Basic planning data, such as the aircraft performance/models, will probably not change from scenario to scenario.

3. Grab pen and paper. For each piece of data that will fit into the RAIDES database, write down exactly what you would type for each item in the record. See Figure 3.2-1.
4. Enter the database. Review your handwritten notes from (3). Select a table to work in, delete the unnecessary data, add the new data, and then go to the next table.

As a reminder, your input in these examples is enclosed in triangular brackets. Don't actually type the brackets, but do type the RETURN key. For example, where the example indicates a user input of <DE>, you should type the D-key, the E-key and then hit the Return-key. You may type in either uppercase or lowercase; lowercase letters are automatically translated by RAIDES into uppercase.

3.2.1 How can I enter the new enemy raids?

Overview: You will show the existing raids from the unclassified sample scenario supplied by SCT with the RAIDES software. You will then delete these raids and add the raids identified in your scenario (Figure 3.2-1).

Step 1: Select DATABASE from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

Text should appear in the text window.

Step 2: Hit the RETURN key.

The database menu should appear in the text window.

Step 3: The first items in the list from Figure 3.2-1 are the enemy raids. Given the RAID table, examine it's current contents.

RAID TABLE

ID	RAID-1	RAID-2	RAID-3
DESC	NAPALM & CBU's	ROCKETS & BOMBS	ROCKETS & BOMBS
NMIS	1	1	1
BASE	HAB	HWS2	HAB
TGT	ASY1	MSR3	MSR4
NAC	8	4	4
ACTY	FLO/D	FEN/E	FEN/E
ITR	OPT	OPT	OPT
ETR	OPT	OPT	OPT
TOT	0800	1630	1700
TWIN	15	15	30
IAC	1	1	1

BASE TABLE

ID	HAB	HWS2
DESC	Haina Air Base	Highway Strip
X	32U PB04504970	32U PB22301100
PRFL	HIGH	HIGH
NACT	2	1
ACTY	FLO/D, FEN/E	FEN/E
NAC	8,4	4
PART	UNKNOWN, UNKNOWN	UNKNOWN
UPDA	120689:0700, 120689:0700	120689:0700

TGT TABLE

ID	MSR3	ASY1	MSR4
DESC	Main Supply Route	Assembly Area	Main Supply Route
X	32U MA80504650	32U MA69005450	32U MA98505400

FLOT TABLE

ID	FLOT	IFF-ON	IFF-OFF
DESC	FLOT	IFF-ON	IFF-OFF
TYPE	ACO LINE	ACO LINE	ACO LINE
NPTS	2	2	2
X	32U NB50003000	32U NB50013000	32U NB49995000
	32U NA60005000	32U NA60015000	32U NA59995000

Figure 3.2-1 Scenario Data

PCOR TABLE

ID	P2A1
DESC	<i>Southern pene corr</i>
NPTS	3
X	32U NA90009000
	32U NA57007600
	32U NA50007250

BRIG TABLE

ID	35TH
DESC	35TH ADA
X	32U MA60003950
ANTH	3.0
NBTL	2
BATL	1-52, 3-2

BATL TABLE

ID	1-52	3-2
DESC	1-52 ADA HAWK	3-2 ADA CHAP
X	32U MA82005900	32U MA94004950
ANTH	5.0	5.0
NBAT	1	1
BATT	1-52/A	3-2/A

BATT TABLE

ID	1-52/A	3-2/A
DESC	HAWK BATTERY	CHAP BATTERY
X	32U MA87005200	32U MA85004550
ANTH	2.0	1.0
NFIR	2	3
FIRU	1-52/A/1, 1-52/A/2	3-2/A/1, 3-2/A/2, 3-2/A/3

FIRU TABLE

ID	1-52/A/1	1-52/A/2	3-2/A/1	3-2/A/2	3-2/A/3
DESC	HAWK	HAWK	CHAP	CHAP	CHAP
ITYP	HAWK	HAWK	CHAP	CHAP	CHAP

Figure 3.2-1 Scenario Data, continued

Select the SHOW option. Type <SH>.

```

DATA BASE: SPECIFY DATA BASE OPERATION P. 1 OF 1

F1--DONE      - DONE WITH DATABASE OPERATIONS      (/ )
F2--ADD        - ADD A RECORD TO A TABLE            (AD )
F3--DELETE     - DELETE RECORD(S) FROM A TABLE      (DE )
F4--CHANGE     - CHANGE RECORD(S) FROM A TABLE      (CH )
F5--COPY       - COPY A RECORD IN A TABLE           (CO )
F6--SHOW       - SHOW RECORD(S) OF A TABLE          (SH )
F7--REPORT     - CREATE OR MODIFY A REPORT            (RE )
F8--WRITE      - WRITE CONTENTS OF DATABASE TO OUTPUT FILE (WR )
S1--HELP       :S2--NEXT PAGE           :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF      :S7--MAIN MENU       :S8--MENU BACKUP
<SH>

```

The SHOW menu will appear.

Step 4: Select the RAID table. Type <RAID>.

Note that there are five pages to this menu. If you don't know the name of the table, use the <S2> option to page through the menu until you find it. If you know the name of the table, type it here.

```

SHOW : CHOOSE WHAT YOU WISH TO SHOW P. 1 OF 5

F1--DONE      - DONE SHOWING INFORMATION            (/ )
F2--ATO        - WRITE ATO TO TERMINAL AND FILE      (ATO )
F3--ATM        - WRITE ATM TO TERMINAL AND FILE      (ATM )
F4--TSTR       - TABLE STRUCTURE                   (TSTR)
F5--ASTR       - ARRAY STRUCTURE                     (ASTR)
F6--ACFT       - AIRCRAFT PARAMETERS                 (ACFT)
F7--ALGP       - ALGORITHM PARAMS                    (ALGP)
F8--BASE       - STAGING BASES                       (BASE)
S1--HELP       :S2--NEXT PAGE           :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF      :S7--MAIN MENU       :S8--MENU BACKUP
<RAID>

```

The RECORD SHOW menu will appear.

Step 5: Select all records in the RAID table. Type <AL>.

```

RECORD SHOW: SPECIFY RECORD(S) TO SHOW IN PLAN P. 1 OF 1
          *'S INDICATE OPTIONS CHOSEN

F1--DONE      - HIT THIS KEY WHEN FINISHED SELECTING RECORDS (/ )
F2--ALL       - SELECT ALL RECORDS                     (AL )
F3--CLEAR     - CLEAR SELECTIONS ON MENU                (CL )
F4--IF        - CONDITIONAL SELECTION CRITERIA          (IF )
F5--BIG_RAID  - FIRST WAVE OF ENEMY                     (2 )
F6--NEW_WAVE  - FOLLOW-ON ATTACK                         (3 )
S1--HELP      :S2--NEXT PAGE           :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF      :S7--MAIN MENU       :S8--MENU BACKUP
FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #> <AL>

```

Step 6: Inform RAIDES that you are done selecting records. Type </>.

Notice the asterisk appearing next to the names BIG_RAID and NEW WAVE; the asterisks indicate which raids have been selected for deletion, although they have not yet been deleted.

The menu is a toggle menu, which means that if you select the same option again the asterisk would vanish, indicating that the raid is no longer selected for deletion.

```

RECORD SHOW: SPECIFY RECORD(S) TO SHOW IN PLAN                                P. 1 OF 1
               *'S INDICATE OPTIONS CHOSEN
F1--DONE      - HIT THIS KEY WHEN FINISHED SELECTING RECORDS                (/ )
F2--ALL       - SELECT ALL RECORDS                                           (AL )
F3--CLEAR     - CLEAR SELECTIONS ON MENU                                     (CL )
F4--IF        - CONDITIONAL SELECTION CRITERIA                               (IF )
F5--BIG_RAID  * - FIRST WAVE OF ENEMY                                         (2 )
F6--NEW WAVE  * - FOLLOW-ON ATTACK                                             (3 )
S1--HELP      :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF    :S7--MAIN MENU         :S8--MENU BACKUP
FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #>      </>

```

The SHOW ITEM menu will appear.

Step 7: Select the items you wish to see. Type <AL>.

```

SHOW ITEM: CHOOSE ITEMS TO SHOW IN PLAN TABLE                                P. 1 OF 4
            ( *'S INDICATE CHOSEN ITEMS)
F1--DONE      - HIT THIS KEY WHEN FINISHED SELECTING ITEMS                (/ )
F2--ALL       - SHOW ALL ITEMS (DONE KEY NOT USED WITH THIS)               (AL )
F3--CLEAR     - CLEAR SELECTIONS ON MENU                                     (CL )
F4--ID        - PLAN ID                                                    (ID )
F5--DESC      - PLAN DESCRIPTION                                           (DESC)
F6--NMIS      - # OF ATTACK MISSIONS                                       (NMIS)
F7--BASE      - BASES FOR ATTACK MISSION                                    (BASE)
F8--TGT       - ATTACK MISSION TARGET                                       (TGT )
S1--HELP      :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF    :S7--MAIN MENU         :S8--MENU BACKUP
<AL>

```

Step 8: Inform RAIDES you are done selecting items. Type </>.

Notice that the asterisks are also used in this menu to indicate the selected items.

Before you hit the return key, move your left index finger very near to the F1 function key at the upper left of the keyboard. As an experienced user of the PAWS hardware, you are undoubtedly aware that the F1 key serves as a scroll/noscroll controller.

As soon as you hit the return, the contents of the selected records of the RAID table will come spewing out in your textual window.

You can hit F1 to stop the output; you must hit F1 again to resume the output.

SHOW ITEM:	CHOOSE ITEMS TO SHOW IN PLAN TABLE (*'S INDICATE CHOSEN ITEMS)	P. 1 OF 4
F1--DONE	- HIT THIS KEY WHEN FINISHED SELECTING ITEMS	(/)
F2--ALL	- SHOW ALL ITEMS (DONE KEY NOT USED WITH THIS)	(AL)
F3--CLEAR	- CLEAR SELECTIONS ON MENU	(CL)
F4--ID	* - PLAN ID	(ID)
F5--DESC	* - PLAN DESCRIPTION	(DESC)
F6--NMIS	* - # OF ATTACK MISSIONS	(NMIS)
F7--BASE	* - BASES FOR ATTACK MISSION	(BASE)
F8--TGT	* - ATTACK MISSION TARGET	(TGT)
S1--HELP	:S2--NEXT PAGE	:S3--GO TO 1ST PAGE :S4--FIND A STRING
S5--GO TO PAGE	:S6--GRAPHICS ON/OFF	:S7--MAIN MENU :S8--MENU BACKUP

</>

Step 9: Examine data.

```
; DBSHOW -- RECORD # 2 IDWORD=BIG_RAID
ID = BIG_RAID
DESC = FIRST WAVE OF ENEMY
NMIS = 4
BASE = WALT OUTR ERFU ERFU
TGT = KITZINGEN GIEBELSTADT NURNBURG
      GELNHAUSEN
NAC = 2 2 2 2
ACTY = SU-24 MIG-31 MIG-25 MIG-25
LID = BOMB MISSILE MISSILE MISSILE
ITR = OPT OPT OPT OPT
ETR = OPT OPT OPT OPT
TOT = 1200 1210 1155 1215
TWIN = 0020 0015 0020 0010
AVDN = 0.0000E+00
AVDS = 0.0000E+00
AMNO = 00CH201 00CH202 00CH203 00CH204
AUNI = WALT80 WALT80 ERFU29TH ERFU29TH
NWP = 12 12 6 6
WPTY = BOMBS BOMBS MISSILES MISSILES
DIST = 170.8 193.5 203.0 183.1
TOFF = 7.1146E+02 7.2033E+02 7.0282E+02 7.2401E+02
FTIM = 7.1590E+02 7.2476E+02 7.0813E+02 7.2881E+02
IDC = 18-MAY-89 09:16
IDM = 26-MAY-89 13:46
; DBSHOW -- RECORD # 3 IDWORD=NEW WAVE
ID = NEW WAVE
DESC = FOLLOW-ON ATTACK
NMIS = 2
BASE = HAIN HAIN
TGT = REGNITZ GEDERN
NAC = 2 2
ACTY = TU-22M TU-22M
LID = MISSILE MISSILE
```

```

ITR   =  OPT   OPT
ETR   =  OPT   OPT
TOT   = 1300   1300
TWIN  = 0020   0010
AVDN  = 0.0000E+00
AVDS  = 0.0000E+00
AMNO  = 00CH301 00CH302
AUNI  = HAIN109 HAIN109
NWP   = 2      2
WPTY  = MISSILES MISSILES
DIST  = 186.9  142.9
TOFF  = 7.6922E+02 7.7175E+02
FTIM  = 7.7437E+02 7.7517E+02
IDC   = 18-MAY-89 09:16
IDM   = 18-MAY-89 09:24

```

HIT CARRIAGE RETURN TO SEE SHOW ITEM MENU OR IF YOU WISH TO TYPE AHEAD, ENTER SELECTION

Step 10: You don't need these raids, so you can delete them. You have to get back to the database main menu to select the DELETE function.

Type <S7>.

The RAIDES main menu will re-appear.

Step 11: Select DATABASE from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

Text should appear in the text window.

Step 12: Hit the RETURN key.

The DATABASE menu should re-appear in the text window.

Step 13: Select the DELETE function. Type <DE>.

DATA BASE: SPECIFY DATA BASE OPERATION		P.	1 OF 1
F1--DONE	- DONE WITH DATABASE OPERATIONS		(/)
F2--ADD	- ADD A RECORD TO A TABLE		(AD)
F3--DELETE	- DELETE RECORD(S) FROM A TABLE		(DE)
F4--CHANGE	- CHANGE RECORD(S) FROM A TABLE		(CH)
F5--COPY	- COPY A RECORD IN A TABLE		(CO)
F6--SHOW	- SHOW RECORD(S) OF A TABLE		(SH)
F7--REPORT	- CREATE OR MODIFY A REPORT		(RE)
F8--WRITE	- WRITE CONTENTS OF DATABASE TO OUTPUT FILE		(WR)
S1--HELP	:S2--NEXT PAGE	:S3--GO TO 1ST PAGE	:S4--FIND A STRING
S5--GO TO PAGE	:S6--GRAPHICS ON/OFF	:S7--MAIN MENU	:S8--MENU BACKUP

<DE>

Step 14: Select the table from which you wish to delete records. Type <RAID>.

TABLE DELETE : SELECT TABLE YOU WISH TO DELETE FROM		P.	2 OF 2
F1--FEAT	- DISPLAY FEATURES		(FEAT)
F2--FLOT	- ACO LINES		(FLOT)
F3--PCOR	- PENETRATION CORRIDORS		(PCOR)
F4--SWCH	- VARIOUS SWITCHES & SIZES		(SWCH)
F5--TGT	- TARGET TABLE		(TGT)
F6--PLAN	- PLAN TABLE		(PLAN)
F7--CURR	- RAIDES CURRENT STATUS		(CURR)
S1--HELP	:S2--NEXT PAGE	:S3--GO TO 1ST PAGE	:S4--FIND A STRING
S5--GO TO PAGE	:S6--GRAPHICS ON/OFF	:S7--MAIN MENU	:S8--MENU BACKUP

<RAID>

Step 15: Select the record(s) to delete. You want to delete all existing records. Type <AL>.

Be careful when you use the AL option. It is easy to delete data you wish to keep.

The AL option is used when selecting records from a table, and items from a record.

RECORD DELETE: SPECIFY RECORD(S) TO DELETE IN PLAN		P.	1 OF 1
(*'S INDICATE OPTIONS CHOSEN)			
F1--DONE	- HIT THIS KEY WHEN FINISHED SELECTING RECORDS		(/)
F2--ALL	- SELECT ALL RECORDS		(AL)
F3--CLEAR	- CLEAR SELECTIONS ON MENU		(CL)
F4--IF	- CONDITIONAL SELECTION CRITERIA		(IF)
F5--BIG_RAID	- FIRST WAVE OF ENEMY		(2)
F6--NEW_WAVE	- FOLLOW-ON ATTACK		(3)
S1--HELP	:S2--NEXT PAGE	:S3--GO TO 1ST PAGE	:S4--FIND A STRING
S5--GO TO PAGE	:S6--GRAPHICS ON/OFF	:S7--MAIN MENU	:S8--MENU BACKUP

FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #>
<AL>

Step 16: Inform RAIDES that you are done selecting records. Type </>.

```

RECORD DELETE: SPECIFY RECORD(S) TO DELETE IN PLAN                                P.      1 OF 1
(  *'S INDICATE OPTIONS CHOSEN  )
F1--DONE          - HIT THIS KEY WHEN FINISHED SELECTING RECORDS                (/  )
F2--ALL           - SELECT ALL RECORDS                                           (AL  )
F3--CLEAR         - CLEAR SELECTIONS ON MENU                                    (CL  )
F4--IF            - CONDITIONAL SELECTION CRITERION                             (IF  )
F5--BIG_RAID      * - FIRST WAVE OF ENEMY                                        (2   )
F6--NEW_WAVE      * - FOLLOW-ON ATTACK                                           (3   )
S1--HELP          :S2--NEXT PAGE          :S3--GO TO 1ST PAGE      :S4--FIND A STRING
S5--GO TO PAGE    :S6--GRAPHICS ON/OFF    :S7--MAIN MENU         :S8--MENU BACKUP
FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #>
</>

```

Step 17: Return to the database main menu. Type <S7>.

The RAIDES main menu should re-appear.

Step 18: Select DATABASE from the RAIDES main menu.

```

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR.
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

```

Text should appear in the text window.

Step 19: Hit the RETURN key.

The DATABASE menu should re-appear in the text window.

Step 20: Select the ADD function. Type <AD>.

```

DATA BASE: SPECIFY DATA BASE OPERATION                                P.      1 OF 1
F1--DONE          - DONE WITH DATABASE OPERATIONS                            (/  )
F2--ADD           - ADD A RECORD TO A TABLE                                  (AD  )
F3--DELETE        - DELETE RECORD(S) FROM A TABLE                          (DE  )
F4--CHANGE        - CHANGE RECORD(S) FROM A TABLE                          (CH  )
F5--COPY          - COPY A RECORD IN A TABLE                                (CO  )
F6--SHOW          - SHOW RECORD(S) OF A TABLE                              (SH  )
F7--REPORT        - CREATE OR MODIFY A REPORT                                (RE  )
F8--WRITE         - WRITE CONTENTS OF DATABASE TO OUTPUT FILE                (WR  )
S1--HELP          :S2--NEXT PAGE          :S3--GO TO 1ST PAGE      :S4--FIND A STRING
S5--GO TO PAGE    :S6--GRAPHICS ON/OFF    :S7--MAIN MENU         :S8--MENU BACKUP
<AD>

```


Step 21: Select the table to which you wish to add records. Type <RAID>.

```

TABLE DELETE : SELECT TABLE YOU WISH TO DELETE FROM          P.      2 OF 2
F1--FEAT      - DISPLAY FEATURES                               (FEAT)
F2--FLOT      - ACO LINES                                     (FLOT)
F3--PCOR      - PENETRATION CORRIDORS                         (PCOR)
F4--SWCH      - VARIOUS SWITCHES & SIZES                      (SWCH)
F5--TGT       - TARGET TABLE                                 (TGT )
F6--PLAN      - PLAN TABLE                                   (PLAN)
F7--CURR      - RAIDES CURRENT STATUS                         (CURR)
S1--HELP      :S2--NEXT PAGE                                :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF                          :S7--MAIN MENU       :S8--MENU BACKUP
<RAID>

```

Step 22: Review your handwritten notes or use Figure 3.2-1. You will now enter all items to define the new RAID record.

Start with RAID-1. Enter the ID of the raid. Type <RAID-1>.

This menu is asking you to type in the value for the ID of the raid. There are no pre-supplied options, you must type in the actual value. The bottom line of the menu indicates that this is a character item of up to 12 characters length.

Note the dash character embedded in the name. If you wish to have a blank character embedded in a name, it is necessary to enclose the name in quotation marks. Thus you could type: "BIG_ RAID", but not BIG_ RAID.

```

ADD SCALAR:  ENTER VALUE FOR ID IN PLAN TABLE                P.      1 OF 1
ITEM IS PLAN ID
F1--DONE      - WRITE THE RECORD (ZEROS OUT REST OF RECORD)  ( / )
S1--HELP      :S2--NEXT PAGE                                :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF                          :S7--MAIN MENU       :S8--MENU BACKUP
FORMAT (CH12): 1 to 12 characters
<RAID-1>

```

Step 23: Enter Description of the raid. Type <"NAPALM AND CBUS">.

```

ADD SCALAR:  ENTER VALUE FOR DESC IN PLAN TABLE              P.      1 OF 1
ITEM IS PLAN DESCRIPTION
F1--DONE      - WRITE THE RECORD (ZEROS OUT REST OF RECORD)  ( / )
S1--HELP      :S2--NEXT PAGE                                :S3--GO TO 1ST PAGE   :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF                          :S7--MAIN MENU       :S8--MENU BACKUP
FORMAT (CH24): 1 to 24 characters
<"NAPALM AND CBUS">

```

Step 24: Enter Number of missions in this raid. Type <1>.

```

ADD SCALAR:  ENTER VALUE FOR NMIS IN PLAN TABLE                P.      1 OF 1
              ITEM IS # OF ATTACK MISSIONS
F1--DONE      - WRITE THE RECORD (ZEROS OUT REST OF RECORD)      (/ )
S1--HELP      :S2--NEXT PAGE                :S3--GO TO 1ST PAGE    :S4--FIND A STRING
S5--GO TO PAGE:S6--GRAPHICS ON/OFF          :S7--MAIN MENU        :S8--MENU BACKUP
FORMAT (INT ): decimal integer
<1>

```

Step 25: Enter Base for 1st (and only) mission in raid. Type <HAB>.

If you entered a value for NMIS greater than 1, then this menu would ask for all of the bases. The following menus, such as targets, would also ask for this item in the missions before proceeding to the next item.

For example, if NMIS = 3, this menu would appear three times, first asking for the base of mission one, then the base of mission two, etc.

```

ADD VECTOR :  ENTER VALUE FOR BASE( 1) IN PLAN TABLE          P.      1 OF 1
              ITEM IS BASES FOR ATTACK MISSION
F1--DONE      - WRITE THE RECORD (ZEROS OUT REST OF RECORD)      (/ )
F2--SUBSCRIPT - CHANGE SUBSCRIPT, CURRENTLY = 1; (LIMIT = 4      (SU )
F3--ZERO      - ZERO (OR BLANK) OUT THE REST OF THE ITEM          (ZE )
S1--HELP      :S2--NEXT PAGE                :S3--GO TO 1ST PAGE    :S4--FIND A STRING
S5--GO TO PAGE:S6--GRAPHICS ON/OFF          :S7--MAIN MENU        :S8--MENU BACKUP
FORMAT (CH04): 1 to 4 characters
<HAB>

```

Step 26: Enter the remaining data for this RAID record. Type <ASY1 8 FLO/D OPT OPT 0800 15 1>.

Review Appendix D of this manual to learn about the type ahead feature of the database text menus.

```

ADD VECTOR:  ENTER VALUE FOR TGT ( 1) IN PLAN TABLE          P.      1 OF 1
              ITEM IS ATTACK MISSION TARGET
F1--DONE      - WRITE THE RECC'D (ZEROS OUT REST OF RECORD)      (/ )
F2--SUBSCRIPT - CHANGE SUBSCRIPT, CURRENTLY = 1; (LIMIT = 4      (SU )
F3--ZERO      - ZERO (OR BLANK) OUT THE REST OF THE ITEM          (ZE )
S1--HELP      :S2--NEXT PAGE                :S3--GO TO 1ST PAGE    :S4--FIND A STRING
S5--GO TO PAGE:S6--GRAPHICS ON/OFF          :S7--MAIN MENU        :S8--MENU BACKUP
FORMAT (CH12): 1 to 12 characters
<ASY1 8 FLO/D OPT OPT 0800 15 1>

```

Step 27: Return to the RAIDES main menu. Type <S7>.

The RAIDES main menu will re-appear.

Step 28: Select DATABASE from the RAIDES main menu.

MAIN MENU - SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

Text should appear in the text window.

Step 29: Hit the RETURN key.

The DATABASE menu should re-appear in the text window.

Step 30: Now enter the records for RAID-2 and RAID-3, just as you entered the data for RAID-1.

Step 31: You need to make sure that you didn't mistype the data.

Repeat steps 1-9 to review your new raids

If there were any mistakes, delete the 'bad' record(s) of the RAID table and re-enter the data.

If there were no mistakes, then you have completed the work in the RAID table. Now you will work in another table.

3.2.2. If I add new raids to the database, is there anything else I should check?

If you read the RAID portion of section 4.3, the ACTY item says "Match ID in ACFT". This means that for any RAID, the aircraft type must match the ID of a record in the ACFT table

Thus, whenever you enter a new raid, check the ACFT table to make sure that the aircraft type is in the database. If the type is not in the database, either add the type or change the aircraft in the raid.

3.2.3 How can I add or change the FLOT, IFF-ON, and IFF-OFF?

Step 1: Reviewing Figure 3.2-1, you have to change the FLOT table.

This table is unique in that it has a maximum of 4 records; one record for the header of the table (which you never see), and one record each for the FLOT, IFF-ON, and IFF-OFF.

If you know the exact coordinates of these items (from Figure 3.2-1), the easiest method to enter this data is to modify the existing records.

Depending upon the scenario data you receive, it may be easier and faster to modify existing records rather than entering new records. This is particularly helpful when you mistype data.

The FLOT data can also be graphically entered by using the DRAW function, which is located in the UTILITIES section of RAIDES.

Step 2: Select the CHANGE function from the DATABASE main menu. Type <CH>.

```
DATA BASE: SPECIFY DATA BASE OPERATION P. 1 OF 1
F1--DONE - DONE WITH DATABASE OPERATIONS (/ )
F2--ADD - ADD A RECORD TO A TABLE (AD )
F3--DELETE - DELETE RECORD(S) FROM A TABLE (DE )
F4--CHANGE - CHANGE RECORD(S) FROM A TABLE (CH )
F5--COPY - COPY A RECORD IN A TABLE (CO )
F6--SHOW - SHOW RECORD(S) OF A TABLE (SH )
F7--REPORT - CREATE OR MODIFY A REPORT (RE )
F8--WRITE - WRITE CONTENTS OF DATABASE TO OUTPUT FILE (WR )
S1--HELP :S2--NEXT PAGE :S3--GO TO 1ST PAGE :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF :S7--MAIN MENU :S8--MENU BACKUP
CH>
```

Step 3: Select the FLOT table. Type <FLOT>.

```
TABLE ADD: SELECT TABLE YOU WISH TO ADD TO P. 1 OF 3
F1--DONE - DONE ADDING RECORDS (/ )
F2--ACFT - AIRCRAFT PARAMETERS (ACFT)
F3--ALGP - ALGORITHM PARAMS (ALGP)
F4--BASE - STAGING BASES (BASE)
F5--AIRS - AIRSTAR (AIRS)
F6--AOB - AIR ORDER OF BATTLE (AOB )
F7--EOB - ELECTR. ORDER OF BATTLE (EOB )
F8--GOB - GROUND ORDER OF BATTLE (GOB )
S1--HELP :S2--NEXT PAGE :S3--GO TO 1ST PAGE :S4--FIND A STRING
S5--GO TO PAGE :S6--GRAPHICS ON/OFF :S7--MAIN MENU :S8--MENU BACKUP
<FLOT>
```

Step 4: Select the record to change. Type <FLOT>.

You also could have typed <3> to select the FLOT record.

```

RECORD CHANGE: SELECT RECORD(S) TO CHANGE IN PLAN TABLE          P.      1 OF 1
                   *'S INDICATE OPTIONS CHOSEN
F1--DONE           - HIT THIS KEY WHEN FINISHED SELECTING RECORDS      (/  )
F2--ALL            - SELECT ALL RECORDS                                (AL  )
F3--CLEAR          - CLEAR SELECTIONS ON MENU                          (CL  )
F4--IF             - CONDITIONAL SELECTION CRITERIA                     (IF  )
F5--IFF-ON         - ACO LINE                                           (2   )
F6--FLOT           - ACO LINE                                           (3   )
F7--IFF-OFF        - ACO LINE                                           (4   )
S1--HELP           :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE     :S6--GRAPHICS ON/OFF      :S7--MAIN MENU          :S8--MENU BACKUP
FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #>
<FLOT>

```

Step 5: Inform RAIDES that you are done selecting records. Type </>.

```

RECORD CHANGE: SELECT RECORD(S) TO CHANGE IN PLAN TABLE          P.      1 OF 1
                   *'S INDICATE OPTIONS CHOSEN
F1--DONE           - HIT THIS KEY WHEN FINISHED SELECTING RECORDS      (/  )
F2--ALL            - SELECT ALL RECORDS                                (AL  )
F3--CLEAR          - CLEAR SELECTIONS ON MENU                          (CL  )
F4--IF             - CONDITIONAL SELECTION CRITERIA                     (IF  )
F5--IFF-ON         - ACO LINE                                           (2   )
F6--FLOT           * - ACO LINE                                           (3   )
F7--IFF-OFF        - ACO LINE                                           (4   )
S1--HELP           :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE     :S6--GRAPHICS ON/OFF      :S7--MAIN MENU          :S8--MENU BACKUP
FOR SUCCESSIVE RECORDS ENTER <RECORD #>:<RECORD #>
</>

```

Step 6: Select the items you wish to change in the FLOT record. You only need to change the number of points in the FLOT, and the location of the points in the FLOT. Type <NPTS X />.

This example is using the type ahead capability.

```

CHANGE ITEM: SELECT ITEM(S) TO CHANGE IN FLOT TABLE              P.      1 OF 2
                   CHANGING RECORD 3
F1--DONE           - HIT THIS KEY WHEN FINISHED SELECTING ITEMS      (/  )
F2--ALL            - CHANGE ALL ITEMS                                (AL  )
F3--CLEAR          - CLEAR SELECTIONS ON MENU                          (CL  )
F4--ID             - FLOT ID              FLOT                        (ID  )
F5--DESC           - FLOT DESCRIPTION      ACO LINE                   (DESC)
F6--TYPE           - ACO LINE TYPE          ACO LINE                   (TYPE)
F7--NPTS           - NUMBER OF POINTS      8                          (NPTS)
F8--X              - LOCATION OF POINTS    VECTOR ITEM                (X   )
S1--HELP           :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE     :S6--GRAPHICS ON/OFF      :S7--MAIN MENU          :S8--MENU BACKUP
<NPTS X />

```

Step 7: Enter the number of points in the new FLOT. Type <2>.

If the number of points was the same, you could either not select the item NPTS, or you could type <.> which tells RAIDES to use the current value.

```

CHANGE SCALAR:  ENTER VALUE FOR NPTS  IN FLOT TABLE                P.      1 OF 1
                  ITEM IS NUMBER OF POINTS
F1--DEFAULT      - DEFAULT TO CURRENT VALUE: 8                      ( .  )
F3--DONE         - DONE WITH CHANGES TO THIS SCALAR ITEM          ( /  )
S1--HELP         :S2--NEXT PAGE           :S3--GO TO 1ST PAGE       :S4--FIND A STRING
S5--GO TO PAGE   :S6--GRAPHICS ON/OFF     :S7--MAIN MENU             :S8--MENU BACKUP
FORMAT (INT ): integer
<2>

```

Step 8: Enter the locations of the FLOT points. Type <32U NB50003000>.

This menu is asking you to enter a location. You may respond using 6, 8 or 10 character UTM's, or latitude/longitude in degrees-minutes-seconds, degrees-minutes-hundredths or decimal degrees.

If you enter UTM, and the UTM zone is either 31U, 32U or 33U, then it is not necessary to enter this zone. However, if you do enter the zone, then you must enter a 3 character zone followed by one or more blanks followed by the 6, 8 or 10 character UTM coordinate.

Blanks are not allowed within the UTM coordinate. If you use one of the latitude/longitude forms, you must enter latitude followed by one or more blanks followed by longitude. Blanks are not allowed within either latitude or longitude.

The hemisphere (N or S for latitude; E or W for longitude) is required for the degrees-minutes-seconds or degrees-minutes-hundredths form; it must not appear for decimal degrees.

The following are nine alternate methods of entering the same coordinate.

PB36008100	PB360810	PB3681
32U PB36008100	32U PB360810	32U PB3681
511547.0N 0105657.1E	5115.78N 01056.95E	51.26306 10.94919

CHANGE VECTOR: ENTER VALUE FOR X(1) IN FLOT TABLE P. 1 OF 1
 ITEM IS LOCATION OF POINTS

F1--DEFAULT	- DEFAULT TO CURRENT VALUE: 32U PB38061010	(.)
F2--SUBSCRIPT	- CHANGE SUBSCRIPT, CURRENTLY = 1; (LIMIT = 8	(SU)
F3--DONE	- DONE WITH CHANGES TO THIS VECTOR ITEM	(/)

S1--HELP :S2--NEXT PAGE :S3--GO TO 1ST PAGE :S4--FIND A STRING
 S5--GO TO PAGE :S6--GRAPHICS ON/OFF :S7--MAIN MENU :S8--MENU BACKUP

LTLN EXAMPLES: 32U PA19199600, 503010.2N 0104050.5E
 50.5028 10.6807, 5030.17N 01040.84E
 <32U NB50003000>

Step 9: Enter the location of the 2nd FLOT point. Type <32U NA60005000>.

CHANGE VECTOR:ENTER VALUE FOR X(2) IN FLOT TABLE P. 1 OF 1
 ITEM IS LOCATION OF POINTS

F1--DEFAULT	- DEFAULT TO CURRENT VALUE: 32U PB38063700	(.)
F2--SUBSCRIPT	- CHANGE SUBSCRIPT, CURRENTLY = 2; (LIMIT = 8	(SU)
F3--DONE	- DONE WITH CHANGES TO THIS VECTOR ITEM	(/)

S1--HELP :S2--NEXT PAGE :S3--GO TO 1ST PAGE :S4--FIND A STRING
 S5--GO TO PAGE :S6--GRAPHICS ON/OFF :S7--MAIN MENU :S8--MENU BACKUP

LTLN EXAMPLES: 32U PA19199600, 503010.2N 0104050.5E
 50.5028 10.6807, 5030.17N 01040.84E
 <32U NA60005000>

HIT CARRIAGE RETURN TO SEE CHANGE ITEM MENU OR IF YOU WISH TO TYPE AHEAD,
 ENTER SELECTION

Step 10: You are still at the CHANGE ITEM menu. You need to change the
 IFF-ON and IFF-OFF, which are also in this table. Instead of
 returning to the main menu, you should backup to the previous
 menu. Type <S8>.

The RECORD CHANGE menu will re-appear.

RECORD CHANGE: SELECT RECORD(S) TO CHANGE IN PLAN TABLE P. 1 OF 1
 *'S INDICATE OPTIONS CHOSEN

F1--DONE	- HIT THIS KEY WHEN FINISHED SELECTING RECORDS	(/)
F2--ALL	- SELECT ALL RECORDS	(AL)
F3--CLEAR	- CLEAR SELECTIONS ON MENU	(CL)
F4--IF	- CONDITIONAL SELECTION CRITERIA	(IF)
F5--IFF-ON	- ACO LINE	(2)
F6--FLOT	- ACO LINE	(3)
F7--IFF-OFF	- ACO LINE	(4)

S1--HELP :S2--NEXT PAGE :S3--GO TO 1ST PAGE :S4--FIND A STRING
 S5--GO TO PAGE :S6--GRAPHICS ON/OFF :S7--MAIN MENU :S8--MENU BACKUP

FOR SUCCESSIVE RECORDS ENTER <RECORD #>:
 <RECORD #>

Step 11: Now change the IFF-ON and IFF-OFF records, using the procedures
 outlined in steps 1-9.

3.2.4 How can I add or change the penetration corridors?

Step 1: From reviewing Figure 3.2-1, you find you need to change the PCOR table.

Remember, if you can add new data to one table of the database, you can add new data to any table. The ADD function works the same for all tables.

If you need help adding a new PCOR record, follow the procedures outlined in steps 1-31 for entering a new raid.

The penetration corridors can also be entered graphically by using the DRAW function in the UTILITIES section.

3.3 After the basic data is in RAIDES, how do I meet the Commander's objective?

To meet the objectives, you must generate the expected air raids, build sites which will support the fire units available, and then deploy fire units to the sites to maximum their usefulness in defense against the raids.

3.3.1 How do I generate the air raids?

Step 1: You need to build a defense plan. The defense plan can be empty, meaning that it has no deployed units in it. Select the DEFENSE PLAN option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The DEFENSE PLAN menu will appear.

Step 2: Select the SELECT PLAN option from the DEFENSE PLAN menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The SELECT DEFENSE PLAN menu will appear.

If no defense plans exist, you will automatically go to the ID FOR NEW DEFENSE PLAN menu (step 7).

Step 3: Delete the defense plans no longer required. Select all plans that exist; in this case, AUTUMN.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
AUTUMN
EXIT MENU

The AUTUMN defense plan option should become highlighted.

You can keep a maximum of five defense plans.

Step 4: Select the DELETE PLAN option.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
AUTUMN
EXIT MENU

The CONFIRM DELETE menu will appear.

Step 5: Select the YES - DELETE SELECTED PLANS option.

CONFIRM DELETE -- SELECT ONE
YES - DELETE SELECTED FILES
OOPS - DO NOT DELETE

The DEFENSE PLAN menu will re-appear.

Step 6: Select the SELECT PLAN option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

Since no defense plans exist, the ID FOR NEW DEFENSE PLAN menu will automatically appear.

Step 7: Enter the name for the new defense plan. Type <MY_PLAN>.

ID FOR THE NEW DEFENSE PLAN
ENTER 1 TO 8 CHARS

This menu is an input pop-up menu.

The DESCRIPTION FOR THE NEW DEFENSE PLAN menu will appear.

Step 8: Enter the description for the new defense plan. Type <"HAWK AND CHAP DEFENSE">.

DESCRIPTION FOR THE NEW DEFENSE PLAN
ENTER 1 TO 24 CHARS

This menu is also an input pop-up menu.

RAIDES will then take some time to initialize the plan.

The MODIFY DEFENSE PLAN menu will appear.

Step 9: Select the SELECT TYPES option.

MODIFY DEFENSE PLAN MENU -- SELECT ONE
SELECT TYPES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

The SELECT TYPES menu will appear.

Step 10: The scenario data (Figure 3.2-1) indicates that you are interested in HAWK and CHAP units. Select the HAWK option.

SELECT TYPES MENU -- SELECT ONE OR MANY
ALL TYPES
HAWK
VULCAN
CHAP
STINGER
PATRIOT
EXIT MENU

The HAWK option will become highlighted.

Step 11: Now select the CHAP option.

SELECT TYPES MENU -- SELECT ONE OR MANY
ALL TYPES
HAWK
VULCAN
CHAP
STINGER
PATRIOT
EXIT MENU

The CHAP option will also become highlighted.

Step 12: Select the EXIT MENU option.

SELECT TYPES MENU -- SELECT ONE OR MANY
ALL TYPES
HAWK
VULCAN
CHAP
STINGER
PATRIOT
EXIT MENU

The MODIFY DEFENSE PLAN menu will re-appear.

Step 13: Select the EXIT MENU option.

The DEFENSE PLAN menu will re-appear.

Step 14: Select the SAVE PLAN option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

Your new defense plan is now being saved. You have not deployed any assets yet, but you have selected which assets will be in your defense plan.

The DEFENSE PLAN menu will re-appear.

Step 15: Select the EXIT MENU option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The RAIDES main menu will re-appear.

Step 16: Select the AIR RAID option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The AIR RAID menu will appear.

Step 17: Select the SELECT ATTACK RAID option.

AIR RAID MENU -- SELECT ONE
AIRCRAFT BEDDOWN
SELECT ATTACK RAID
CURRENT ALTITUDE (f) = 1000
AIR RAID CURRENT DEFENSE PLAN
PROCESS CURRENT RAID
EXIT MENU

The ATTACK RAIDS menu will appear.

Step 18: Select the next raid to process. Choose RAID-1.

ATTACK RAIDS -- SELECT ONE	
RAID-1	NOPALM AND CBUS
RAID-2	ROCKETS AND BOMBS
RAID-3	ROCKETS AND BOMBS
EXIT MENU	

RAIDES will process your selection, checking for any errors in the selected raid and the rest of the database.

Watch the message box in the banner at the top of the text monitor.

If the data in the selected attack raid (the RAID table) does not match data in other database tables, the message box will turn red and a message will appear which indicates the problem.

You should write down the error message and then, as the message indicates, hit the RETURN key.

For example, if the first mission in the RAID-1 attack raid includes MIG-31 aircraft from HAB base, the message will indicate there is a problem with mission one, the problem being that MIG-31s do not exist at the HAB base.

You should then use the database manager to either change the missions' aircraft from MIG-31 to FEN/E, since FEN/E are supported at HAB (BASE table) or modify the HAB base record to include support of MIG-31 aircraft.

After modification of the database, you should again try to select the erroneous attack raid. You should continue this cycle of checking the attack raid and modifying the database until RAIDES returns you to the AIR RAID menu without any errors.

Step 19: Select the CURRENT ALTITUDE option.

AIR RAID MENU -- SELECT ONE	
AIRCRAFT BEDDOWN	
SELECT ATTACK RAID	
CURRENT ALTITUDE (f) = 1000	
AIR RAID CURRENT DEFENSE PLAN	
PROCESS CURRENT RAID	
EXIT MENU	

The PENETRATION ALTITUDES menu will appear.

Step 20: Select the altitude specified by the scenario. Choose level 4.

PENETRATION ALTITUDES -- SELECT ONE	
LEVEL 1 :	75 FEET
LEVEL 2 :	150 FEET
LEVEL 3 :	300 FEET
LEVEL 4 :	500 FEET
LEVEL 5 :	1000 FEET
LEVEL 6 :	1500 FEET
LEVEL 7 :	10000 FEET
EXIT MENU	

Level 4 is the closest to 150 meters.

These altitudes are defined by the SYSAD during execution of the SUPR program. You can't change these altitudes.

The value for each altitude level is with respect to the earths' surface, i.e. the altitude above ground level (AGL) in feet or meters.

The AIR RAID menu will re-appear.

Step 21: Select the AIR RAID CURRENT DEFN PLAN option.

AIR RAID MENU -- SELECT ONE	
AIRCRAFT BEDDOWN	
SELECT ATTACK RAID	
CURRENT ALTITUDE (f) = 500	
AIR RAID CURRENT DEFN PLAN	
PROCESS CURRENT RAID	
EXIT MENU	

The menu will appear.

Step 22: Select the YES - option.

AIR RAID MENU -- SELECT ONE
YES - I WANT TO PROCESS CURRENT DEF PLAN
OOPS - RETURN TO AIR RAID MENU

RAIDES will process data for several minutes.

The AIR RAID menu will re-appear.

Step 23: Section 2.3 of this manual showed you how to process the current air raid. Follow those instructions, steps 6-19.

Step 24: Process the other two air raids, following steps 17-23 (do not perform Step 21) of these instructions.

Step 25: Return to the RAIDES main menu.

3.3.2 How do I build sites for my fire units?

Step 1: Select the SITE LOCATOR option from the RAIDES main menu.

MAIN MENU -- SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

Step 2: Determine whether you need any of the existing sites (if necessary, see section 2.3 for a reminder of how to do this). If you don't need the sites, then you want to delete the useless, existing sites. Select the DISCARD SITES option.

SITE LOCATOR MENU -- SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

The DISCARD CURRENT SITE menu will appear.

Step 3: You will select the sites you wish to delete. You want to delete all sites, so select the ALL CURRENT SITES option.

```
DISCARD CURRENT SITE MENU -- SELECT ONE
ALL CURRENT SITES
GRAPHICAL SELECTION
CLEAR SELECTIONS
EXIT MENU
RICHIE
LESLIE
JEFFIE
DAVIE
PETEY
HUEY
DEWEY
LOUIE
GOOEY
JOEY
DOPEY
SLEEZY
EXIT MENU
```

This option automatically selects all sites for deletion.

Only sites which are not occupied by a deployed fire unit in any defense plan can be deleted.

The sites (whose IDs are listed in the menu after the functions) which are marked for deletion are highlighted.

Initially, no sites are selected for deletion.

The DISCARD CURRENT SITE menu will re-appear.

Step 4: Select either of the EXIT MENU options.

DISCARD CURRENT SITE MENU -- SELECT ONE
ALL CURRENT SITES
GRAPHICAL SELECTION
CLEAR SELECTIONS
EXIT MENU
RICHIE
LESLIE
JEFFIE
DAVIE
PETEEY
HUEY
DEWEY
LOUIE
GOOEY
JOEY
DOPEY
SLEEZY
EXIT MENU

The CONFIRM DELETE menu will appear.

Step 5: Select the YES - DELETE SELECTED SITES option.

CONFIRM DELETE -- SELECT ONE
YES - DELETE SELECTED SITES
OOPS - DO NOT DELETE

The selected sites will be deleted from the database.

The SITE LOCATOR menu will re-appear.

Step 6: You are ready to build new sites. Select the SELECT POTENTIAL SITES option.

SITE LOCATOR MENU -- SELECT ONE
SHOW CURRENT SITE
SHOW SITE COVERAGE
SELECT POTENTIAL SITE
MODIFY CURRENT SITE
DISCARD CURRENT SITE
LOS COMM
EXIT MENU

Step 7: Define the types of defense assets the site(s) will support. Select the SELECT SITE TYPE option.

SELECT POTENTIAL SITE MENU - SELECT ONE
SELECT POTENTIAL SITE
SELECT SITE TYPE
HIGHEST POINT << DEFAULT
CLOSEST POINT
LOWEST POINT
N KILOMETERS = 0.20
PTL = 45.
MASKING ALTITUDE (m) = 457
LOOK DOWN MODE = OFF
SAVE SITE
LINE OF SIGHT
EXIT MENU

The SELECT TYPE menu will appear.

Step 8: Your scenario data (Figure 3.2-1) indicates that you have HAWK and CHAP assets. First, select the HAWK option.

SELECT TYPE MENU -- SELECT ONE OR MANY
ALL TYPES
STINGER
VULCAN
PATRIOT
HAWK
CHAP
EXIT MENU

The air defense type options in this menu are toggle options.

The HAWK option will become highlighted.

The SELECT TYPE menu will re-appear.

Step 9: Now select the CHAP option.

SELECT TYPE MENU -- SELECT ONE
STINGER
VULCAN
PATRIOT
HAWK
CHAP
EXIT MENU

The CHAP option will become highlighted.

The SELECT TYPE menu will re-appear.

Step 10: Select the EXIT MENU option.

SELECT TYPE MENU - SELECT ONE
STINGER
VULCAN
PATRIOT
HAWK
CHAP
EXIT MENU

The SELECT POTENTIAL SITE menu will re-appear.

Step 11: Your scenario data indicates that the penetrating air raids will be at an altitude of approximately 150 meters. You will want to build sites with good coverage at this altitude, so select the MASKING ALTITUDE option.

SELECT POTENTIAL SITE MENU - SELECT ONE
SELECT POTENTIAL SITE
SELECT SITE TYPE
HIGHEST POINT << DEFAULT
CLOSEST POINT
LOWEST POINT
N KILOMETERS = 0.20
PTL = 45.
MASKING ALTITUDE (m) = 457
LOOK DOWN MODE = OFF
SAVE SITE
LINE OF SIGHT
EXIT MENU

The MASKING ALTITUDE menu will appear.

Step 12: Enter the desired altitude for displaying terrain masking data. Type <150>.

MASKING ALTITUDE (CURRENT = 457)
ENTER NEW ALTITUDE (m)

This menu is an input pop-up menu.

Note the units for altitude (m=meters).

The SELECT POTENTIAL SITE menu will re-appear.

Step 13: Select the SELECT POTENTIAL SITE option.

```
SELECT POTENTIAL SITE MENU - SELECT ONE
SELECT POTENTIAL SITE
SELECT SITE TYPE
HIGHEST POINT << DEFAULT
CLOSEST POINT
LOWEST POINT
N KILOMETERS = 0.20
PTL = 45.
MASKING ALTITUDE (m) = 150
LOOK DOWN MODE = OFF
SAVE SITE
LINE OF SIGHT
EXIT MENU
```

The SITE LOCATION menu will appear.

Step 14: Select the mode in which you will choose the potential site. Choose the ENTER POINTS GRAPHICALLY option.

```
SITE LOCATION MENU - SELECT ONE
ENTER POINTS GRAPHICALLY
ENTER POINTS TEXTUALLY
EXIT MENU
```

The cursor will now appear on the graphics monitor as a crosshair.

Move the cursor to a potential location for a site.

Step 15: Press the left mouse button to select the site location.

RAIDES will then process your selection.

If you review the SELECT POTENTIAL SITE menu (in step 13), you will note the options HIGHEST POINT <<DEFAULT and N KILOMETERS. RAIDES will read the terrain data for all points within a circle (radius of 0.20 kilometers), and the actual location of the site will be at the point within the circle that has the highest elevation.

RAIDES will compute the terrain mask for a non-look down mode site.

See Appendix A for more information.

The terrain mask for the site, at the current altitude (150m) will appear as purple polygon(s) on the graphics monitor.

A white asterisk will appear at the site location.

You may want to use the MAP manipulation functions to get a better view of the terrain masking data. For more information, see the PAWS documentation.

The SELECT POTENTIAL SITE menu will re-appear.

Step 16: If the site is a good site, then select the SAVE SITE option.

SELECT POTENTIAL SITE MENU - SELECT ONE	
SELECT POTENTIAL SITE	
SELECT SITE TYPE	
HIGHEST POINT	
CLOSEST POINT	
LOWEST POINT << DEFAULT	
N KILOMETERS = 0.50	
PTL = 21.	
MASKING ALTITUDE (m) = 457	
LOOK DOWN MODE = OFF	
SAVE SITE	
LINE OF SIGHT	
EXIT MENU	

The ID FOR SITE menu will appear.

Step 17: Enter the ID for this site. Type <HC001>.

ID FOR THE SITE
ENTER 1 TO 8 CHARS

This menu is an input pop-up menu.

The ID you enter in this menu will be the ID from which you can identify and use this site.

The DESCRIPTION OF SITE menu will appear.

Step 18: Enter the description of this site. Type <"HAWK AND CHAP SITE">.

DESCRIPTION OF SITE
ENTER 1 TO 24 CHARS

RAIDES will process the site, saving the terrain mask and the danger contours.

The time for this process depends upon which defense types you selected for the site. For example, the Stinger will take approximately four seconds and the HAWK will take approximately thirty seconds.

The SELECT POTENTIAL SITE menu will re-appear.

Step 19: Since you have five fire units, you will probably want to build at least five sites (if not more).

You may want to remember where the targets are located, since you're defending them, and the projected routes of the enemy raids.

Repeat steps 13-18 until you have built the desired number of sites.

Step 20: Return to the RAIDES main menu.

3.3.3 How do I build a Defense Plan?

This section explains how to build a defense plan. It is assumed that you have already built some sites, and you have an objective in mind (for example, given Figure 3.2-1, use the air defense assets to defend the targets from the enemy raids). From time to time, you may need to leave the DEFENSE PLAN function to add more sites to your scenario.

Step 1: Select the DEFENSE PLAN option from the RAIDES main menu.

MAIN MENU - SELECT ONE
DATABASE
LOCE
SITE LOCATOR
DEFENSE PLAN
AIR RAID
UTILITIES
EXIT MENU

The DEFENSE PLAN menu will appear.

Step 2: Select the SELECT PLAN option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

Some of the options in the DEFENSE PLAN menu will have no functionality until you have selected a defense plan.

Other functions may not function until you deploy one or more fire units to sites.

The SELECT DEFENSE PLAN menu will appear.

Step 3: Select the plan you defined when you built the air raids. Choose MY_PLAN.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
MY_PLAN
EXIT MENU

The SELECT DEFENSE PLAN menu will re-appear.

Step 3A: Now select the ACTIVATE PLAN option to inform RAIDERS to process MY_PLAN.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
MY_PLAN
EXIT MENU

The SELECT DEFENSE PLAN menu will re-appear.

Step 4: Select the EXIT MENU option.

SELECT DEFENSE PLAN MENU -- SELECT ONE
ADD NEW PLAN
DELETE PLAN
ACTIVATE PLAN
MY PLAN
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 5: Select the SELECT/MODIFY UNITS IN PLAN option.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The MODIFY DEFENSE PLAN menu will appear.

Step 6: Select the SHOW CURRENT TYPES/UNITS option.

MODIFY DEFENSE PLAN MENU -- SELECT ONE
SELECT TYES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

The SELECTED UNITS/TYPES menu will appear.

Step 7: Review the currently selected units.

SELECTED UNITS/TYPES - SELECT ANY TO EXIT	
TYPES SELECTED	
BRIGADES SELECTED	
35TH	
BATTALIONS SELECTED	
1-52	HAWK BATTALION
3-2	CHAP BATTALION
BATTERIES SELECTED	
1-52/A	HAWK BATTERY
3-2/A	CHAP BATTERY
FIRE UNITS SELECTED	
1-52/A/1	HAWK FIRE UNIT
1-52/A/2	HAWK FIRE UNIT
3-2/A/1	CHAP FIRE UNIT
3-2/A/2	CHAP FIRE UNIT
3-2/A/3	CHAP FIRE UNIT
EXIT MENU	

This menu is not really a menu; it is a list.

The ID and description of all units that were selected when you defined the defense plan (section 3.3, building an air raid) will appear in this list.

If you did not delete the units not required by your scenario, they may also appear in this menu.

Step 8: Select any item or line in the menu to exit.

SELECTED UNITS/TYPES -- SELECT ANY TO EXIT	
TYPES SELECTED	
BRIGADES SELECTED	
35TH	
BATTALIONS SELECTED	
1-52	HAWK BATTALION
3-2	CHAP BATTALION
BATTERIES SELECTED	
1-52/A	HAWK BATTERY
3-2/A	CHAP BATTERY
FIRE UNITS SELECTED	
1-52/A/1	HAWK FIRE UNIT
1-52/A/2	HAWK FIRE UNIT
3-2/A/1	CHAP FIRE UNIT
3-2/A/2	CHAP FIRE UNIT
3-2/A/3	CHAP FIRE UNIT
EXIT MENU	

The MODIFY DEFENSE PLAN menu will re-appear.

Step 9: Select the EXIT MENU option.

MODIFY DEFENSE PLAN MENU -- SELECT ONE
SELECT TYES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 10: Select the MOVE FIRE UNIT option.

DEFENSE PLAN MENU -- SELECT ONE	
SELECT PLAN	
SELECT/MODIFY UNITS IN PLAN	
SHOW DEFENSES	
SELECT AIR RAID	
MOVE BRIGADE	
MOVE BATTALION	
MOVE BATTERY	
MOVE FIRE UNIT	
SAVE PLAN	
LOS COMM	
EXIT MENU	

The MOVE FIRE UNIT menu will appear.

Step 11: Select one of the fire units to deploy. Select the 1-52/A/1 HAWK.

MOVE FIRE UNIT -- SELECT ONE	
1-52/A/2	HAWK FIRE UNIT
1-52/A/2	HAWK FIRE UNIT
3-2/A/1	CHAP FIRE UNIT
3-2/A/2	CHAP FIRE UNIT
3-2/A/3	CHAP FIRE UNIT
EXIT MENU	

All fire units included in the current defense plan will appear in this menu.

This menu will also indicate the operational status of each site and the site occupied by the fire unit.

The FIRE UNIT menu will appear.

Step 12: Select the MOVE FIRE UNIT option.

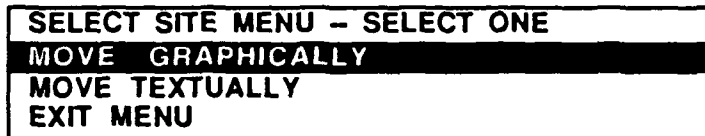
1-52/A/1 FIRE UNIT MENU -- SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS: NOT DEPLOYED	
SAVE CHANGES	
EXIT MENU	

Notice the operational status of the fire unit; NOT DEPLOYED.

You can't perform any function (except EXIT MENU) until you move or deploy the fire unit to a site.

The SELECT SITE menu will appear

Step 13: Select the method to pick the site. Select the MOVE GRAPHICALLY option.



Symbols will appear on the graphics monitor which indicate the positions of all sites that support the current fire unit, which is a HAWK.

The symbols are a white plus sign, with the ID of the site appearing in white letters. If the site is occupied by another fire unit in this defense plan, the letters will be blue.

You can't deploy two fire units to the same site in the same defense plan.

If the map background does not sufficiently display the sites, you may want to use the MAP option (on the PAWS main menu) to manipulate the map.

The cursor will appear on the graphics monitor as a crosshair.

Step 14: Select a site using the cursor.

Don't worry about picking the exact site location; the site selected will be the site closest to the mouse location.

The site must be displayed to be selected.

The ID of the selected site will appear in a message.

The FIRE UNIT menu will re-appear; note the change in status.

Step 15: Select the SHOW FIRE UNIT COVERAGE option.

1-52/A/1 FIRE UNIT MENU – SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS:	DEPLOYED
SAVE CHANGES	
EXIT MENU	

The SHOW FIRE UNIT COVERAGE menu will appear.

Step 16: Select the TERRAIN MASK option.

SHOW DEFENSES MENU – SELECT ONE	
DEFENSE ALTITUDE =	457
MAX RANGE	
TERRAIN MASK	
EXIT MENU	

The options in this menu are toggle options.

The terrain mask for the fire unit will be displayed in red polygon(s) over the map background.

The terrain mask shows where the fire unit can see the attacking enemy aircraft if they were at the current AGL altitude.

The SHOW FIRE UNIT COVERAGE menu will re-appear; the TERRAIN MASK option will be highlighted.

Step 17: Select the MAX RANGE option.

SHOW DEFENSES MENU – SELECT ONE	
DEFENSE ALTITUDE =	457
MAX RANGE	
TERRAIN MASK	
EXIT MENU	

The Max Range circle (or wedge-shaped sector) will be displayed on the map background.

Compare the maximum range capability of the fire unit with the real coverage (due to terrain masking).

Is this a good site for the fire unit, given your objective?

The SHOW FIRE UNIT COVERAGE menu will re-appear; the MAX RANGE option will also be highlighted.

Step 18: If the current AGL altitude is not 150 meters, then the question in Step 16 couldn't have been accurately answered; you were not looking at data that could help you make a decision.

The current AGL altitude is 457 meters, not the 150 meter penetration altitude of the raids.

Select the DEFENSE ALTITUDE option.

SHOW DEFENSES MENU -- SELECT ONE	
DEFENSE ALTITUDE =	457
MAX RANGE	
TERRAIN MASK	
EXIT MENU	

The MASKING ALTITUDE menu should appear.

Step 19: Type in the new altitude. Type <150>.

The max range circle/sector and the terrain mask will be plotted for the new altitude.

The SHOW FIRE UNIT COVERAGE menu will re-appear.

Step 20: Select the EXIT MENU option.

SHOW DEFENSES MENU -- SELECT ONE	
DEFENSE ALTITUDE =	150
MAX RANGE	
TERRAIN MASK	
EXIT MENU	

The FIRE UNIT menu will re-appear.

Step 21: If the terrain mask requires further analysis, select the LOS COMM option.

73RD FIRE UNIT MENU -- SELECT ONE
SHOW FIRE UNIT COVERAGE
MOVE FIRE UNIT
LOS COMM
STATUS: DEPLOYED
SAVE CHANGES
EXIT MENU

A message will appear in the PAWS banner:

LOS_CO03 MSG: THE INITIAL
POINT FOR LOS COMM CHECK IS
THE UNIT LOCATION. NOW ENTER
THE SECOND POINT

The cursor will now appear on the graphics monitor.

The LOS COMM function can also be used to check line of sight between the fire unit location and any other location.

Step 22: Determine the heading of the portion of the terrain mask which requires analysis. Graphically select a point on the max range circle/sector along the heading.

A window will appear on the text monitor which displays a graph of the terrain between the two points in yellow. A green line indicates the line of sight between the two points.

The FIRE UNIT menu will re-appear.

Step 23: You have decided that the current site is a good location for the fire unit.

You need to change the status of the fire unit.

Select the STATUS: DEPLOYED option.

1-52/A/1 FIRE UNIT MENU -- SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS:	DEPLOYED
SAVE CHANGES	
EXIT MENU	

The STATUS option is a toggle option.

The STATUS indicates the state of the fire unit. Only an OPERATIONAL fire unit is considered to have any capability against enemy raids.

The FIRE UNIT menu will re-appear.

Step 24: Select the SAVE CHANGES option.

1-52/A/1 FIRE UNIT MENU -- SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS:	OPERATIONAL
SAVE CHANGES	
EXIT MENU	

It will take about 2-15 seconds for the FIRE UNIT menu to re-appear.

Step 25: Select the EXIT MENU option.

1-52/A/1 FIRE UNIT MENU -- SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS:	OPERATIONAL
SAVE CHANGES	
EXIT MENU	

The MOVE FIRE UNIT menu will re-appear.

Step 26: For the remaining fire units, deploy them using steps 11-24.

MOVE FIRE UNIT -- SELECT ONE	
1-52/A/1	HAWK FIRE UNIT OPERATIONAL @ SITE_ID
1-52/A/2	HAWK FIRE UNIT
3-2/A/1	CHAP FIRE UNIT
3-2/A/2	CHAP FIRE UNIT
3-2/A/3	CHAP FIRE UNIT
EXIT MENU	

Notice the change in the menu; RAIDES indicates the status of the fire unit, and where it is deployed.

Step 27: The MOVE FIRE UNIT menu should be the current menu. Select the EXIT MENU option.

MOVE FIRE UNIT -- SELECT ONE	
1-52/A/1	HAWK FIRE UNIT OPERATIONAL @ SITE_ID
1-52/A/2	HAWK FIRE UNIT
3-2/A/1	CHAP FIRE UNIT
3-2/A/2	CHAP FIRE UNIT
3-2/A/3	CHAP FIRE UNIT
EXIT MENU	

The DEFENSE PLAN menu will re-appear.

Step 28: You should visually review your defense plan. If you follow the instructions in section 2.3, showing a defense plan, steps 11-18, you can do this step.

Step 29: Before saving your new defense plan, you can analyze the missions in any raid and determine if your defense network is effective.

Select the SELECT AIR RAID option from the DEFENSE PLAN menu.

DEFENSE PLAN MENU -- SELECT ONE	
SELECT PLAN	
SELECT/MODIFY UNITS IN PLAN	
SHOW DEFENSES	
SELECT AIR RAID	
MOVE BRIGADE	
MOVE BATTALION	
MOVE BATTERY	
MOVE FIRE UNIT	
SAVE PLAN	
LOS COMM	
EXIT MENU	

The ATTACK PLANS menu will appear.

Step 30: Select the air raid you want to review. Select <RAID-1>.

ATTACK PLANS MENU -- SELECT ONE
RAID-1
RAID-2
RAID-3
EXIT MENU

RAIDES will check the validity of the selected raid.

If the raid is not currently processed (in AIR RAID), the DEFENSE PLAN menu will re-appear.

Otherwise, the ATTACK DO menu will appear.

Step 31: Select the DEFENSE EFFECTIVENESS option.

ATTACK DO MENU -- SELECT ONE
DEFENSE EFFECTIVENESS
DISPLAY AIR RAID
EXIT MENU

The TARGETS FOR RAID menu will appear.

Step 32: Select the missions (targets) you wish to review.

TARGETS FOR RAID -- SELECT ONE OR MANY
ASY1
EXIT MENU

The items in this menu are toggle options.

This raid has only one mission, thus one target.

The TARGETS FOR RAID menu will re-appear; the ASY1 option will be highlighted.

Step 33: Select the EXIT MENU option to begin the review.

TARGETS FOR RAID -- SELECT ONE OR MANY
ASY1
EXIT MENU

The review of the mission data will appear in the text window.

To stop the data from scrolling, press the F1 function key.

To re-start the scrolling, press the F1 key again.

The mission data will also be written to a data file called ANALYSIS.REP. You can print this file by selecting the TOOLS option in the PAWS main menu, then the FILE BROWSER function. For more information about these functions, see the PAWS documentation.

The DEFENSE PLAN menu will re-appear.

Step 34: If your defense plan does not meet the objectives, then you should either use SITE LOCATOR to develop new sites or re-deploy your fire units to different sites.

Either of these alternatives are outlined in this section of the manual.

Step 35: Do not forget this step!

If you want to keep the changes to your defense plan, select the SAVE PLAN option.

If you don't want to save the changes, exit the DEFENSE PLAN menu.

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

The DEFENSE PLAN menu will re-appear.

Step 36: Select the EXIT MENU option.

The RAIDES main menu will re-appear.

3.4 Who is your System Administrator and what is his function?

You have now seen many of the RAIDES capabilities. Some capabilities have not been discussed, but are outlined in Appendix A. However, if you think about some of the things you have seen in RAIDES, several questions arise.

1. Who defines the defense models (DMDL table)?
2. How can I change the DMDLs?
3. Who defines the seven penetration altitudes?
4. Who defines the operational area of interest or planning area?
5. Who defines the size of the statespace cells?
6. Who maintains a complete set of database files in case I delete all of my data?
7. Who maintains a complete set of database files in case the computer trashes or ruins my data files?

The answer is the System Administrator (SYSAD). The SYSAD is responsible for defining and providing the basic RAIDES planning data. In general, the SYSAD is responsible for the welfare of your PAWS and it's applications.

The SYSAD should be a knowledgeable RAIDES user. The SYSAD should be knowledgeable about the PAWS. The SYSAD maintains a 'master set' of RAIDES database files, so if your files become unusable, you can start over using the master files.

If you have a reason to change the basic RAIDES planning data, such as the DMDLs, discuss it with the SYSAD. Sometimes he may not change the data, since he is accountable to all users, not just you. Thus, any suggested change should apply to all users.

If you don't know if you can change a certain type of data, or if you don't know where (table name) the data is located, ask your SYSAD.

3.5 How do I protect my database or un-do a trashed database?

When you get to this section, you should have spent a fair amount of effort to create your scenario, which includes air raids, targets, sites, defense plans, etc. There are times when you would like to save the RAIDES database files, so that if you accidentally delete data, you can restore a copy of the saved files.

Unfortunately, at times the PAWS hardware acts flakey and the computer trashes or ruins your RAIDES database files. Your files can also get trashed if you improperly shut down the PAWS. These are also good reasons for saving your RAIDES database files.

There are 3 sets of RAIDES database files that you can have at your disposal.

1. The files you are currently working on (local files).
2. A set of files you saved (saved files).
3. The master files from the SYSAD (master files).

Review Figure 2.2.1-1. This figure represents the RAIDES menu that appears after you select the RAIDES option from the PAWS main menu. This menu also appears immediately after you exit the RAIDES program. Study the options.

3.5.1 How can I save my database files after I created them?

Step 1: Exit RAIDES and stop at the menu depicted in Figure 2.2.1-1.

Step 2: Are you sure that your local files are 'good'?

'Good' means that you have generated air raids, sites, defense plans, etc., and error messages do not frequently occur.

If they aren't good, then you probably shouldn't save them.

Step 3: Select the SAVE LOCAL FILES option from the black/white RAIDES menu.

The computer will ask you to confirm that you want to destroy the previously saved files. Select OK.

3.5.2 If I or the computer trash(es) my local files, how can I restore my saved files?

Step 1: Login to the PAWS and select the RAIDES application. Stop at the menu depicted in Figure 2.2.1-1.

Step 2: Are you sure that your local files are trashed?

If you attempt to run RAIDES, and errors occur during the 'open files' initialization, then your files are probably trashed. You may want to seek assistance from the SYSAD to confirm that your files are trashed.

If you seem to be having many problems in RAIDES, and none of the problems are explainable (by the RAIDES user's manual or the SYSAD), then your files may be trashed.

Step 3: Select the RESTORE LOCAL FILES option from the black/white RAIDES menu.

The computer will ask you to confirm that you want to destroy your local files. Select OK.

If you never saved your local files, then you will lose more of your work since you will have to restore the master files.

3.5.3 If I try to restore my local files and those files don't work, then what?

Step 1: Exit RAIDES and stop at the menu depicted in Figure 2.2.1-1.

Step 2: Are you sure that your local files don't work?

If you restored local files and RAIDES still won't work, then you may have copied trashed local files into the saved files.

If you attempt to run RAIDES, and errors occur during the 'open files' initialization, then your files are probably trashed. You may want to seek assistance from the SYSAD to confirm that your files are trashed.

If you seem to be having many problems in RAIDES, and none of the problems are explainable (by the RAIDES user's manual or the SYSAD), then your files may be trashed.

Step 3: Select the RESTORE MASTER FILES option from the black/white RAIDIS menu.

This operation will erase all of your work. You will be stuck with the master files; in essence, you will be starting anew.

The computer will ask you to confirm that you want to destroy your local files. Select OK.

SECTION 4 - The Database Specification

4.1 How is the database organized?

The RAIDES database is managed internally by the RAIDES software rather than by an external or commercially available database management system. The database is initialized by ASCII (command) files that are read by the RAIDES database software. The database itself is then stored as binary files on the hard disk, which, in general, are accessible only by the RAIDES software. The database software permits the user to dynamically update the data.

The RAIDES database is stored entirely on the hard disk. RAIDES tables and arrays are fixed record length, binary, direct access files. The body of each file is preceded by a header record that is used by RAIDES for file management purposes. Thus, the first record number available for user-defined data is record number 2.

The RAIDES software frequently gets data from the database. Therefore, it is essential to have direct access to meet timing requirements.

4.1.1 What is the RAIDES database?

The database consists of tables and arrays. The array data is computed by the software, and then used by you (without your knowledge). The tables contain data that you or your SYSAD have input. The different tables contain various types of data.

For example, you have data about enemy bases, types of aircraft, and the priority areas you want to defend (the enemy's targets). Let's look at the types of aircraft. Suppose you have three types, Mig-21, Mig-25, and Su-24. Each of these types is different, and RAIDES allows you to define the unique features of each one. Thus, the aircraft table will have 3 records, where a record corresponds to a type of aircraft.

What makes each type of aircraft unique? Factors such as the amount of fuel carried, the types of weapons carried, time and distance to climb, etc. Each of these factors is also unique, and RAIDES allows you to define each factor for each type of aircraft. Look up the factors in the ACFT table, paragraph 4.3.

To summarize, the RAIDES database is composed of:

1. A number of tables, where each table represents a type of object, such as aircraft or bases.
2. A number of records in each table, where each record represents a particular object of the type, such as Mig-21 or Su-24 aircraft.
3. A number of items in each record of each table, where each item represents a unique factor which describes the object, such as maximum fuel carried or time to climb to altitude.

4.1.2 What can I do to the data in the database?

RAIDES allows you to perform a number of operations on the data in the database. These operations include ADD, DELETE, CHANGE, COPY, and SHOW. The database manager, frequently called the database, is set up as a series of text menus which allow you to perform these operations.

The easiest way to learn the database is to understand the structure of the database and the method in which you operate on the data. The structure of the database precedes this discussion.

1. You start the database by selecting an operation, such as SHOW.
2. Next select the table you want to show, such as ACFT.
3. Next select the record from the ACFT table, such as Mig-21.
4. Next select the items in the Mig-21 record you wish to show.
5. Now the database will show you the data.

4.2 How are the database tables defined?

Paragraph 4.3 gives a general description of each table along with a listing of the items in the records of each table. There are some tables and arrays in the database that you cannot modify, but you can see their contents via the DATABASE SHOW option.

This section includes a copy of the BASE table record definition. The remainder of this section will show you how to interpret this definition.

1. Each table indicates the maximum number of records you can enter in the table. For bases, the max = 100.
2. A high level description of the table is provided.

3. If you review Figure 3.2-1, you will find the base Haina. This will be our example.
4. The items in the record are listed in order.
5. Each item is described with unique information. How do you use the information?
 - a) ID - this is what you and RAIDES call the thing. For Haina, its ID is HAB. Is 'HAB' less than or equal to 4 characters? Yes, so this name is okay. If you create a RAID record, and you want to use Haina, then the BASE item in the RAID record will have to be HAB.
 - b) DESC - this is the long description of the thing. It can be anything. For Haina, it should be "Haina air base".
 - c) X - this is the location of the base. You can enter the location in either UTM or Latitude/Longitude. If you use Latitude/Longitude, then your values have to be in the range (-180.0 to 180.0). For Haina, X is 32U PB04504970.
 - d) NACT - this is the number of different aircraft types at this base. Haina has Mig-27 and Su-24, so NSUP should be 2. This value is in the range from 1-12.
 - e) ACTY - these are the names of the aircraft types at this base. You have to enter 2 names (since NSUP=2). The names are FLO/D and FEN/E. These names are not Mig-27 and Su-24 because each name in SUPP must be the same as an ID of any record in the ACFT table.
6. Some items in the table are automatically computed by RAIDES. You an't enter these items, but you can see the information by using the DATABASE SHOW option. In the BASE record, items such as NCOR and PCOR fall into this category.

BASE Table: Maximum number of bases in table = 100

The BASE table contains records which describe the enemy staging bases in your scenario, including their location, types of aircraft at the base, and number of aircraft of each type.

ID - BASE SHORT NAME -- 4 characters -- Match BASE item in RAID record
Unique identifier to reference the base.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the base.

X - LOCATION OF STAGING BASE -- UTM or DEG (-180.0 to 180.0)
Bases will not be considered if they are outside of the scenario boundaries defined in ALGP.

PRFL - FLIGHT PROFILE TO PCOR -- 4 characters - Either "HIGH" or "LOW"
The flight profile from the base to the PCORs for the attacking enemy raids. The item HALT, in record 2 of the ALGP table, indicates the threshold to distinguish between high and low.

NACT - NUMBER OF A/C TYPES AT THE BASE -- 1 to 12
Number of aircraft types at the base.

ACTY - AIRCRAFT TYPES AT BASE -- 8 character -- Match ID item in ACFT record
List of NACT aircraft types at the base.

NAC - NUMBER OF EACH AIRCRAFT TYPE AT BASE -- 1 to 150
Number of each aircraft type, for NACT types, at the base.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

NCOR - NUMBER OF PCOR POINTS ACCESSIBLE TO BASE
Number of penetration corridor points to which the base has access.

PCOR - ACCESSIBLE PCOR POINTS
List of NCOR penetration corridor points accessible to the base.

DCOR - DISTANCE TO PCOR POINT
Distance between base and penetration corridor points listed above.

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3 Database Tables Defined

This section gives a detailed description of the record structure for each table that you can modify. Some of the tables, which you will probably never use or modify, have been omitted.

Two other tables, ALGP and DMDL, have been included at the end of this section. Only the SYSAD can modify these tables, but you may need access to the information in these tables.

4.3.1 ACFT -- Models of Aircraft Parameters

ACFT Table: Maximum number of aircraft records in table = 99

This table contains a record for each type of aircraft in the scenario and their flight characteristics. This performance data is used by the AIR RAID function to determine whether an aircraft is able to reach a particular target.

ID - AIRCRAFT ID -- 8 characters
Specific type of aircraft. If you use LOCE as an intel feed, then the ID should match a type used in the LOCE Data Element Dictionary (DED).

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the aircraft type.

TYPE - GENERIC A/C TYPE -- 8 characters -- MUST be blank " "
Determines the statespace used to calculate the route danger. Must match ACTY item in record 2 of the ALGP table.

VHI - NOMINAL VELOCITY HIGH -- 0.0 to 10000.0 KNOTS
Baseline velocity at high altitude. See HALT item in record 2 of the ALGP table to determine the high/low threshold.

VLOW - NOMINAL VELOCITY LOW -- 0.0 to 10000.0 KNOTS
Baseline velocity at low altitude.

FTAX - FUEL - TAXI HOLD -- 0.0 to 10000.0 LBS
Fuel required to taxi and hold until take off.

FCOM - FUEL RESERVE COMBAT -- 0.0 to 10000.0 LBS
Required combat reserve fuel.

FLAN - FUEL RESERVE LANDING -- 0.0 to 10000.0 LBS
Required landing reserve fuel.

NSCL - NUMBER OF SCL'S -- 1 to 40
Number of types of Standard Configuration Loads carried by this aircraft type.

LID - SCL ID -- 12 characters
List of NSCL Standard Configuration Load (SCL) identification codes.

WEAP - WEAPON TYPE -- 8 characters
List of NSCL weapon types.

NWP - NUMBER OF WEAPONS -- 0 to 999
List of NSCL counts for weapon load of each SCL.

FTOF - TAKE-OFF FUEL PER SCL -- 0.0 to 10000.0 LBS
Total fuel burn on take-off of aircraft.

FCAP - FUEL CAPACITY -- 0.0 to 300000.0 LBS

Total fuel capacity of aircraft.

- FFRH - FUEL FLOW RATE HIGH -- 0.0 to 10000.0 LB/MIN
Fuel burn rate at high altitude and nominal high altitude velocity.
- FFRL - FUEL FLOW RATE LOW -- 0.0 to 10000.0 LB/MIN
Fuel burn rate at low altitude and nominal low altitude velocity.
- FCLB - FUEL TO CLIMB SCL HIGH -- 0.0 to 10000.0 LBS
Total fuel burn to climb to high altitude.
- TCLB - TIME TO CLIMB SCL HIGH -- 0.0 to 1000.0 MINUTES
Time required to climb to high altitude.
- DCLB - DISTANCE TO CLIMB SCL HIGH -- 0.0 to 100.0 NM
Horizontal distance (not altitude) required to climb to high altitude.
- FFCH - FUEL FLOW RT-HIGH CLEAN -- 0.0 to 1000.0 LB/MIN
Fuel flow rate at high altitude and nominal high altitude velocity without weapons.
- FFCL - FUEL FLOW RATE-LOW CLEAN -- 0.0 to 1000.0 LB/MIN
Fuel flow rate at low altitude and nominal low altitude velocity without weapons.

*****~**
** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

- IDC - RECORD CREATION DATE
- IDM - RECORD MODIFICATION DATE

4.3.2 BASE -- Enemy Staging Bases

BASE Table: Maximum number of bases in table = 100

The BASE table contains records which describe the enemy staging bases in your scenario, including their location, types of aircraft at the base, and number of aircraft of each type.

- ID - BASE SHORT NAME -- 4 characters -- Match BASE item in RAID record
Unique identifier to reference the base.
- DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the base.
- X - LOCATION OF STAGING BASE -- UTM or DEG (-180.0 to 180.0)
Bases will not be considered if they are outside of the scenario boundaries defined in ALGP.
- PRFL - FLIGHT PROFILE TO PCOR -- 4 characters - Either "HIGH" or "LOW"

The flight profile from the base to the PCORs for the attacking enemy raids. The item HALT, in record 2 of the ALGP table, indicates the threshold to distinguish between high and low.

- NACT - NUMBER OF A/C TYPES AT THE BASE -- 1 to 12
Number of aircraft types at the base.
- ACTY - AIRCRAFT TYPES AT BASE -- 8 character -- Match ID item in ACFT record
List of NACT aircraft types at the base.
- NAC - NUMBER OF EACH AIRCRAFT TYPE AT BASE -- 1 to 150
Number of each aircraft type, for NACT types, at the base.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

- NCOR - NUMBER OF PCOR POINTS ACCESSIBLE TO BASE
Number of penetration corridor points to which the base has access.
- PCOR - ACCESSIBLE PCOR POINTS
List of NCOR penetration corridor points accessible to the base.
- DCOR - DISTANCE TO PCOR POINT
Distance between base and penetration corridor points listed above.
- IDC - RECORD CREATION DATE
- IDM - RECORD MODIFICATION DATE

4.3.3 BATL -- Battalions in Scenario

BATL Table: Maximum number of battalion records in the table = 30

Each record of this table contains information describing a battalion in your scenario. These records contain information such as the battalion HQ location and the batteries under the battalion's control. These records are used in conjunction with the tables for other units (BRIG,BATT,FIRU) for planning your defense network.

- ID - BATTALION ID -- 8 characters -- Match BATL item in BRIG record
Unique identifier by which you and RAIDES refer to the battalion.
- DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the battalion.
- X - LOCATION OF BATTALION HQ -- UTM or DEG (-180.0 to 180.0)
Battalions will not be considered if they are outside the statespace boundaries defined in record 2 of the ALGP table.
- ANTH - ANTENNA HEIGHT -- 0.0 to 100.0 meters

The antenna height of the communication gear at the battalion HQ.

NBAT - NUMBER OF BATTERIES UNDER THIS BATTALION -- 0 to 4
The number of batteries that report to this battalion.

BATT - BATTERY IDENTIFIERS -- 8 characters -- Match ID item in BATT record
List of NBAT battery identifiers.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IPRS - PROCESSING STATUS FOR THIS BATTALION

ELEV - ELEVATION OF BATTALION HQ

ITYP - TYPE OF BATTERIES IN BATTALION

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.4 BATT -- Batteries in Scenario

BATT Table: Maximum number of battery records in the table = 120

Each record of this table contains information describing a battery in your scenario. These records contain information such as the battery HQ location and the fire units under the battery's control. These records are used in conjunction with the tables for other units (BRIG,BATL,FIRU) for planning your defense network.

ID - BATTERY ID -- 8 characters -- Match BATT item in BATL record
Unique identifier by which you and RAIDES refer to the battery.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the battery.

X - LOCATION OF BATTERY HQ -- UTM or DEG (-180.0 to 180.0)
Batteries will not be considered if they are outside the
statespace boundaries defined in record 2 of the ALGP table.

ANTH - ANTENNA HEIGHT -- 0.0 to 100.0 meters
The antenna height of the communication gear at the battery HQ.

NFIR - NUMBER OF FIRE UNITS UNDER THIS BATTERY -- 0 to 12
The number of fire units that report to this battery.

FIRU - FIRE UNIT IDENTIFIERS -- 8 characters -- Match ID item in FIRU record
List of NFIR fire unit identifiers.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IPRS - PROCESSING STATUS FOR THIS BATTERY
 ELEV - ELEVATION OF BATTERY HQ
 ITYP - TYPE OF FIRE UNITS IN BATTERY
 IDC - RECORD CREATION DATE
 IDM - RECORD MODIFICATION DATE

4.3.5 BRIG -- Brigades in Scenario

BRIG Table: Maximum number of brigade records in the table = 6

Each record of this table contains information describing a brigade in your scenario. These records contain information such as the brigade HQ location and the battalions under the brigade's control. These records are used in conjunction with the tables for other units (BATL,BATT,FIRU) for planning your defense network.

ID - BRIGADE ID -- 8 characters
 Unique identifier by which you and RAIDES refer to the brigade.

DESC - DESCRIPTION OF RECORD -- 24 characters
 Detailed information about the brigade.

X - LOCATION OF BRIGADE HQ -- UTM or DEG (-180.0 to 180.0)
 Brigades will not be considered if they are outside the statespace boundaries defined in record 2 of the ALGP table.

ANTH - ANTENNA HEIGHT -- 0.0 to 100.0 meters
 The antenna height of the communication gear at the brigade HQ.

NBTL - NUMBER OF BATTALIONS UNDER THIS BRIGADE -- 0 to 5
 The number of battalions that report to this brigade.

BATL - BATTALION IDENTIFIERS -- 8 characters -- Match ID item in BATL record
 List of NBTL battalion identifiers.

 ** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IPRS - PROCESSING STATUS FOR THIS BRIGADE
 ELEV - ELEVATION OF BRIGADE HQ
 NTYP - NUMBER OF TYPES OF BATTALIONS IN THIS BRIGADE
 ITYP - BATTALION TYPES IN BRIGADE

IDC - RECORD CREATION DATE
IDM - RECORD MODIFICATION DATE

4.3.6 DEFP -- Defense Plans of Ada Deployment Schemes to Counter RAIDS

DEFP Table: Maximum number of defense plan records in the table = 5

Each record of this table contains information describing a defense plan in your scenario. These records contain information such as the brigades, battalions, batteries, and fire units in the plan, as well as the deployed location of each of these units. These records are used in conjunction with the tables for units (BRIG,BATL,BATT,FIRU) for planning your defense network.

ID - DEFENSE PLAN ID -- 8 characters
Unique identifier by which you and RAIDES refer to the defense plan.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the defense plan.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

NSIT - NUMBER OF SITES IN DEFENSE PLAN -- 0 to 480
The number of sites occupied by fire units in this defense plan.

OSIT - SITE IDENTIFIERS -- 8 characters
List of NSIT site identifiers, where each identifier matches an ID item in a SITE record.

ALT - CURRENT ALTITUDE

STAT - STATESPACE

NBRG - NUMBER OF BRIGADES - 0 to 6
The number of brigades included in this defense plan.

BRIG - BRIGADE IDENTIFIERS -- 8 characters -- Match ID item in BRIG record
List of NBRG brigade identifiers for the brigades in this defense plan.

XBRG - LOCATION OF BRIGADE HQS -- UTM or DEG
List of locations for NBRG brigade HQs.

NBTL - NUMBER OF BATTALIONS - 0 to 30
The number of battalions included in this defense plan.

BATL - BATTALION IDENTIFIERS -- 8 characters -- Match ID item in BATL record

List of NBTL battalion identifiers for the battalions in this defense plan.

- XBTL - LOCATION OF BATTALION HQS -- UTM or DEG
List of locations for NBTL battalion HQs.
- NBAT - NUMBER OF BATTERIES - 0 to 120
The number of batteries included in this defense plan.
- BATT - BATTERY IDENTIFIERS -- 8 characters -- Match ID item in BATT record
List of NBAT batteries identifiers for the batteries in this defense plan.
- XBAT - LOCATION OF BATTERY HQS -- UTM or DEG
List of locations for NBAT battery HQs.
- NFIR - NUMBER OF FIRE UNITS - 0 to 480
The number of fire units included in this defense plan.
- FIRU - FIRE UNIT IDENTIFIERS -- 8 characters -- Match ID item in FIRU record
List of NFIR fire unit identifiers for the fire units in this defense plan.
- FIRS - FIRE UNIT STATUS -- 12 characters
List of NFIR fire unit status codes for the fire units in this defense plan. The valid codes are " ", "NOT DEPLOYED", "DEPLOYED ", and "OPERATIONAL".
- XFIR - LOCATION OF FIRE UNITS -- UTM or DEG
List of locations for NFIR fire units.
- SITE - SITE IDENTIFIER -- 8 characters -- Match ID item in SITE record
List of NFIR sites occupied by the fire units.
- IDC - RECORD CREATION DATE
- IDM - RECORD MODIFICATION DATE

4.3.7 FIRU -- Fire Units in Scenario

FIRU Table: Maximum number of fire unit records in the table = 480

Each record of this table contains information describing a fire unit in your scenario. These records contain information such as the fire unit location and the type of fire unit. These records are used in conjunction with the tables for other units (BRIG,BATL,BATT) for planning your defense network.

- ID - FIRE UNIT ID -- 8 characters
Unique identifier by which you and RAIDES refer to the fire unit.
- DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the fire unit.

ITYP - TYPE OF FIRE UNIT -- 8 characters -- Match ID item in DMDL record
The type or defense model of the fire unit (such as HAWK or
STINGER).

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IPRS - PROCESSING STATUS FOR THIS BATTALION

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.8 FLOT -- Forward Line of Own Troops (ACO Line)

FLOT Table: Maximum number of records in this table = 9

This table contains records which define important Airspace
COordination Lines (ACO LINES) for the scenario. These include the FLOT
(Forward Line of Own Troops), the IFF-ON line, and the IFF-OFF line.

ID - ACO LINE ID -- 8 characters
Unique identifier of the feature.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the line.

TYPE - ACO LINE TYPE -- 8 characters - Match ID item in FTYPE record
Should normally be set to "ACO LINE". The FTYPE table contains a
record which describes what to do with this line type, for example
what color it is.

NPTS - NUMBER OF POINTS -- 1 to 60
Number of points defining the line.

X - LOCATION OF LINE POINTS -- UTM or DEG (-180.0 to 180.0)
List of NPTS locations of the points which define the line.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.9 PCOR -- Penetration Corridors for Attacking RAIDS

PCOR Table: Maximum number of PCORs in table = 12

This table contains records which define the penetration corridors for the attacking air raids. Each record contains a list of connected points which define the penetration corridors for the scenario.

ID - PCOR ID -- 4 characters
Unique penetration corridor identifier.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information of the penetration corridor.

NPTS - NUMBER OF POINTS IN PCOR -- 1 to 10

X - LOCATION OF POINTS -- UTM or DEG (-180.0 to 180.0)
List of NPTS geographic coordinates of the PCOR points.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

XDOP - PCOR INTERSECTION POINT
Intersection point of this PCOR and the FLOT. If they do not intersect, then it is the intersection of the PCOR and the statespace boundary. If the location of the XDOP is outside the statespace, then this penetration corridor will not be used for planning.

DIST - DISTANCE ALONG PCOR
Distance from start point to intersection point.

DFEG - DANGER FROM DROP-OFF-POINT ON EGRESS
Danger for each generic aircraft type from intersection point to start point of PCOR; used on egress from target.

DFIG - DANGER TO DROP-OFF-POINT ON INGRESS
Danger for each generic aircraft type from start point of PCOR to intersection point; used on ingress to target.

NDOP - NUMBER OF POINTS BEFORE INTERSECTION
Number of points between start point and intersection point (includes start point).

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.10 RAID -- Enemy Attack RAIDS

RAID Table: Maximum number of air raid records = 11

Each record in this table contains one air raid, where an air raid is defined as a number of missions. The definition of each mission in the air raid is also part of this record. The mission data includes staging base, target, number and type of aircraft, and time over target.

ID - RAID ID -- 12 characters
Unique identifier by which you and RAIDES refer to this raid.

DESC - DESCRIPTION OF RECORD -- 24 characters
Detailed information about the raid.

NMIS - NUMBER OF ATTACK MISSIONS -- 0 to 50
Number of attack aircraft missions contained in this raid.

BASE - BASE FOR ATTACK MISSIONS -- 4 characters -- Match ID item in BASE record
List of NMIS bases for the missions in this raid.

TGT - ATTACK MISSION TARGET -- 12 characters -- Match ID item in TGT record
List of NMIS targets for the missions in this raid.

NAC - NUMBER OF AIRCRAFT -- 0 to 99
List of NMIS counts for the number of aircraft in each mission.

ACTY - AIRCRAFT TYPE -- 8 characters -- Match ID item in ACFT record
List of NMIS aircraft; the type for each attack mission.

ITR - INGRESS PCOR -- 8 characters -- Match ID item in PCOR record or set to 'OPT '
List of NMIS penetration corridors for use on ingress by each mission. If ITR has the value 'OPT ', then RAIDES will select the minimum danger corridor on ingress.

ETR - EGRESS PCOR -- 8 characters -- Match ID item in PCOR record or set to 'OPT '
List of NMIS penetration corridors for use on egress by each mission. If ETR has the value 'OPT ', then RAIDES will select the minimum danger corridor on egress.

ITOT - TIME ON TARGET -- 4 characters -- Format is HHMM (HH - Hour, MM - Min)
List of NMIS TOTs; TOT is Time that the attack aircraft will strike the target.

ITWN - TIME ON TARGET WINDOW -- 4 characters -- Format is HHMM
List of NMIS TOT windows for each mission; Deconflicted TOT window is time span, plus or minus the TOT, in which the attacking aircraft will hit the target.

 ** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

AVDN - AVG DANGER (NO SUPPORT)
 Average danger for the attack aircraft routes used for this raid.

AVDS - AVG DANGER (WITH SUPPORT)

AMNO - ATTACK MISSION NUMBER
 List of NMIS mission numbers of the attack missions for this raid.

DIST - APPROXIMATE DISTANCE
 List of NMIS distances for each mission.

TOFF - TAKE-OFF TIME - ATTACK MISSION
 List of approximate take-off times for these attack missions. The actual take-off time for each mission may occur at any time or in any time window such that the aircrew can reach the target within the time on target window.

FTIM - FLOT CROSSING TIME
 Approximate time that the attack mission will cross the FLOT. This value is based on TOFF and the planned route.

PENA - INDEX TO PENETRATION ALTITUDE OF MISSIONS IN RAID

IPRO - CURRENT PROCESSING STATUS OF RAID

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.11 SITE -- Pre-surveyed Sites (Where Fire Units Are Deployed)

SITE Table: Maximum number of site records in the table = 500

Each record in this table contains information describing a site. Each site record describes a surveyed location which can support specified defense asset types, such as HAWK or VULCAN.

ID - SITE IDENTIFIER -- 8 characters
 Unique identifier by which you and RAIDES refer to the site.

DESC - DESCRIPTION OF RECORD -- 24 characters
 Detailed information about the site.

X - LOCATION OF SITE -- UTM or DEG (-180.0 to 180.0)
 Sites can only be defined inside the statespace boundary defined in record 2 of the ALGP table.

PTL - PRIMARY TARGET LINE -- MILS or DEG (0.0 to 360.0)
 The primary target line of any the site, which is the azimuth along which assets deployed at the site will be focused.

NMDL - NUMBER OF DEFENSE ASSET TYPES SUPPORTED -- 1 to 10
 Number of defense asset types (DMDLs) a site can support.

ITYP - DEFENSE ASSET TYPES SUPPORTED -- 8 character -- Match ID item in
 DMDL record
 List of NMDL defense asset types or defense models the site can
 support.

LOOK - LOOK-DOWN MODE OF THE SITE -- 0 to 1
 Indicates whether the site is best occupied by fire units in an
 operational look-down mode. The degree of the look-down angle is
 specific for each type of defense asset; check the LOKD item in
 the appropriate DMDL record. 0 means no look-down, 1 means look-
 down.

 ** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

ELEV - ELEVATION OF THE SITE

IPRS - PROCESSING STATUS OF THE SITE
 If IPRS is set to 150, then the site is fully processed and ready
 for deployment of assets. If IPRS is less than 150, then it is
 not ready for deployment.

OBSR - OBSERVABILITY RATIO

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.12 TGT -- Targets (Defended Areas)

TGT Table: Maximum number of target records in the table = 60

Each record in this table contains information describing the location of a
 target. The targets can also be thought of as areas you want to defend.

ID - TARGET ID -- 12 characters -- Match TGT item in RAID record
 Unique identifier by which you and RAIDES refer to the target.

DESC - DESCRIPTION OF RECORD -- 24 characters
 Detailed information of the target.

X - LOCATION OF TGT -- UTM or DEG (-180.0 to 180.0)
 The location of the target.

 ** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

4.3.13 ALGP -- Algorithm Parameters or Scenario Data

ALGP Table: Record 2 is the only record with data.

***** MODIFIABLE BY SYSAD ONLY *****

This table contains the dimensions in latitude and longitude of the scenario and statespace, as well as information about the multiple altitudes and aircraft of the statespace. This table contains 2 records, a header record and a data record.

ID - IDENTIFIER -- 4 characters -- MUST be set to "ALGP"

DESC - DESCRIPTION OF RECORD -- 24 characters

YXMN - STATESPACE MIN LAT/LON -- -180.0 to 180.0 DEG or UTM
Latitude and longitude of southwest corner of statespace.

YXMX - STATESPACE MAX LAT/LON -- -180.0 to 180.0 DEG or UTM
Latitude and longitude of northeast corner of statespace.

YXCL - SCENARIO MIN LAT/LON -- -180.0 to 180.0 DEG or UTM
Latitude and longitude of southwest corner of scenario.

YXCU - SCENARIO MAX LAT/LON -- -180.0 to 180.0 DEG or UTM
Latitude and longitude of northeast corner of scenario.

*** NOTE :: YXMN and YXMX define the planning area rectangle that you see in the standard RAIDES graphics display. Note that the statespace must be contained within the scenario-space.

DELN - LATITUDE GRID -- 0.0 to 99.0 NM - CURRENT DEFAULT IS 2.0 NM
Length of statespace grid (north-south direction).

DELE - LONGITUDE GRID -- 0.0 to 99.0 NM - CURRENT DEFAULT IS 2.0 NM
Width of statespace grid (east-west) in nautical miles at the mid-latitude of the statespace. The grid width becomes larger for latitudes close to the equator, and smaller for latitudes close to the pole.

*** NOTE :: DELN and DELE should normally be set equal to the same value.

NDIR - NUMBER OF DIRECTIONS -- MUST be set to 8
Number of directions an aircraft can fly once it has entered the statespace.

ARMX - LAMDA - AIR DAMAGE -- 0.0 to 1.0 DANGER/SECOND
Background danger of scenario - this is the penalty factor for flying a combat aircraft in a war zone. CURRENT VALUE IS 5.00E-06.

FLAM - LAGRANGE MULTIPLIER -- 0.0 to 1.0 DANGER/SECOND

Danger factor used by DPA to make routes fly shortest distance in low danger areas of the statespace. CURRENT VALUE IS 1.50E-04.

- NAC - NUMBER OF GENERIC AIRCRAFT TYPE -- MUST be set to 1
The number of generic aircraft type that is being considered.
- ACTY - GENERIC AIRCRAFT ID -- 8 characters - MUST be set to " "
The name of the generic aircraft types that are generated for the statespace.
- VHI - GENERIC A/C VELOCITY HIGH -- 0.0 to 1000000.0 KNOTS
The velocity of each generic aircraft during high altitude penetration. Defense danger at high altitudes (see HALT) is calculated using this velocity.
- VLOW - GENERIC A/C VELOCITY LOW -- 0.0 to 1000000.0 KNOTS
The velocity of each generic aircraft during low altitude penetration. Defense danger at low altitudes (see HALT) is calculated using this velocity.
- RCS - RCS 4 EACH AIRCRAFT TYPE -- 0.0 to 1000000.0 SQ METERS
Radar cross section for each generic aircraft type.
- NALT - NUMBER OF ALTITUDES -- 1 to 7 levels - CURRENT VALUE IS 7
Number of altitudes used in constructing the multiple altitude statespace.
- SASN - SASN FILE NAME AIRCRAFT -- 4 characters
Correlates single altitude statespace files for the RAIDES route generation software.
- MASN - MASN FILE NAME AIRCRAFT -- 4 characters
Correlates multiple altitude statespace files to the appropriate defense plans.
- ALTS - ALTITUDE GRID -- 0.0 to 45000.0 FEET
List of above ground clearance altitudes used in generating the statespace. The length of this list must be NALT.
- IBYT - BYTE PCKD TERR DATA SWCH -- MUST be set to 1
A zero tells the program no byte packed terrain data is available for the terrain masking calculations, and that the program should not consider terrain masking effects when building the statespace. A value of between 1 and 4 indicates that byte-packed terrain data is available and that the program should calculate and consider terrain masking effects. For IBYT greater than 1, the terrain data will be subsampled at that rate. If the user wishes to run RAIDES with a statespace, but has no DTED, IBYT should be set equal to zero. If IBYT is set equal to zero, IMSK must be set equal to zero. If the user has no statespace, IBYT is irrelevant. For normal runs with a statespace and DTED, IBYT should be set between 1 and 4.
- IMSK - TERR MASKING SWITCH -- MUST be set to 2
A value of 1 or more indicates that the program should calculate and consider terrain masking effects. IMSK also determines the number of "minimum observable altitudes" that will be stored within the MASK array for each statespace cell. (A value of 2

indicates that 4 MOA points will be stored per cell--2 in latitude times 2 in longitude). If the user wishes to run RAIDES with a statespace, but has no DTED, IMSK should be set equal to zero. If IBYT is set equal to zero, IMSK must be set equal to zero. If the user has no statespace, IMSK is irrelevant. For normal runs with a statespace and DTED, IMSK should be set at 2.

- TESR - TERR NEIGHBORHOOD SWITCH -- 0.0 to 10.0 NM
This value determines how the terrain masking is done. A neighborhood of TESR nautical mile(s) radius is searched. The highest point above sea level in the searched area is used as the defense location for terrain masking purposes. This applies to statespace elevation of the construction in the SUPR program, as well as the MODIFY and WHAT IF options in the RAIDES program.
- HALT - HIGH/LOW ALTITUDE THRSHD -- 0.0 to 45000.0 FEET
The altitude in feet that determines "High" and "Low" altitude for aircraft performance in RAIDES. The danger for each MASN altitude level will be based on either VHI or VLOW depending on whether or not ALTS(i) is above or below HALT.
- CUTR - CUTOFF RANGE FOR HIGHER RESOLUTION TERRAIN MASKING
If the maximum range of the DMDL (item RMAX) is less than CUTR, then the terrain masking algorithms will increase the resolution of the terrain masking output.
- IDC - RECORD CREATION DATE
- IDM - RECORD MODIFICATION DATE

4.3.14 DMDL -- Air Defense Asset Models

DMDL Table: Maximum number of air defense asset records in this table = 10

***** MODIFIABLE BY SYSAD ONLY *****

Each record of this table contains information describing the generic characteristics of a type of defense. It is used in conjunction with the SITE LOCATOR and DEFENSE PLAN functions, and the FIRU table, to build defense plans.

- ID - SPECIFIC DEFENSE MODEL ID -- 12 characters -- Match ACTY in ALGP
Defense model id is composed of two "fields," a defense type field (first 8 characters), and a generic aircraft type which correlates to a specific statespace (last 4 characters).
- DESC - DESCRIPTION OF RECORD -- 24 characters

NALT - NUMBER OF ALTITUDE BANDS -- 1 to 7
The number of altitude bands used with this defense model.

ALTS - ALT USED 3D DEFN MODEL -- 0.0 to 90000.0 FEET
The floor altitude for each altitude band. The last band will be effective up to the value of HIGH. ALTS is a list of NALT items.

RMAX - MAXIMUM RANGE OF DEFENSE -- 0.0 to 150.0 NM
Maximum defense range at any altitude.

RALT - MAX RANGE AT EACH ALT -- 0.0 to 150.0 NM
Gives the maximum range of the defense for each altitude band. RALT is a list of NALT items. Each value of RALT should be less than or equal to the value in RMAX.

DMIN - MIN LOG-PROB INSIDE RMAX -- DANGER/SEC
DMIN is the minimum danger level that will be applied to the statespace within the defense's maximum radius. The user may set DMIN to a small danger level. This will tend to force the routes to fly around the defense's maximum radius, rather than to just avoid the defense's unmasked coverage. That is, even if a cell is terrain masked from a defense, a small amount of danger will be added to the statespace at that cell. DMIN is normally set to 0.0 in scenarios with dense defense coverage. A value of zero is appropriate in the European theater.

THEL - ANTENNA HT AGL DEFN MODEL -- 0.0 to 2000.0 FEET AGL
The height of the radar antenna for this defense model.

HIGH - MAXIMUM DEFENSE HEIGHT -- 0.0 to 100000.0 FEET AGL
The maximum lethal height of the defense.

FLOR - MINIMUM DEFENSE DEPRESSION HEIGHT -- 0.0 to 100000.0 FEET AGL
The minimum lethal height of the defense. Takes into account the minimum depression angle on some defenses.

NDRG - NUMBER OF DOWNRANGE PTS OR RADIUS POINTS -- 0 to 20
Number of downrange points for a 360-degree coverage defense or radius point for a sector defense. If the number of downrange points is set to one, the statespace algorithm uses the first value in the log probability of danger array (PLOG) to create a cookie cutter type defense template at all unmasked points. This is specified for each altitude band.

NCRG - NUMBER OF CROSSRANGE PTS OR AZIMUTH POINTS -- 0 to 10
Number of crossrange points for a 360-degree coverage defense or azimuth off boresight in degrees for a sector defense. This is specified for each altitude band.

DRG1 - 1ST DOWNRANGE PT OR RADIUS POINT -- -250.0 to 0.0 NM
The distance to the first downrange point in nautical miles. This value is always negative or zero, and is a measure of the distance down range from center at which the first downrange point begins. This is specified for each altitude band.

CRG1 - 1ST CROSSRANGE PT (NM) OR AZIMUTH POINT (DEG)
The distance to the first crossrange point. This value is specified for each altitude band.

DDRG - DELTA DOWNRANGE OR DELTA RADIUS -- 0.0 to 25.0 NM
Range difference between downrange points for a 360-degree coverage defense or radius points for a sector defense. This is specified for each altitude band.

DCRG - DELTA CROSSRANGE (NM) DELTA AZIMUTH (DEG)
Range difference between crossrange points for a 360-degree coverage defense or azimuth for a sector defense. This is specified for each altitude band. The half-width of the sector is obtained by multiplying DCRG by (NCRG-1).

TYPE - TYPE OF DEFENSE -- 4 characters
Acceptable values are: EW, GCI, SAM, AAA, ACQ, and SCTR for Early Warning, Ground Control Intercept, Surface to Air Missile, Anti-Aircraft Artillery, ACQuisition radar, and SCTR for an azimuth sector defense, respectively.

ERP - RADAR EFF RADIATED POWER -- 0.0 to 100.0 DBW
For defenses with an associated radar, this is the effective radiated power of the radar.

GANT - MAIN LOBE ANTENNA GAIN -- 0.0 to 100.0 DB
For defenses with an associated radar, this is the antenna gain for the main lobe.

GSID - SIDELobe ANTENNA GAIN -- -100.0 to 100.0 DB
For defenses with an associated radar, this is the average antenna gain of the sidelobes.

GPP - POST GAIN OVER JAMMING -- -100.0 to 100.0 DB
For defenses with an associated radar, this is the number of decibels necessary to distinguish between actual and jammed signals. It is a measure of the effectiveness of the radar and operator.

RRES - RADAR RNG RESOLUTION -- 0.0 to 1000.0 METERS
The range separation required to distinguish between two aircraft.

RXN - RECEIVER NOISE -- 0.0 to 100.0 DB
Expected noise level at the receiver.

WAVL - RADAR RF WAVELENGTH -- 0.0 to 200.0 METERS
Wavelength of defense radar.

PLOG - PLOG AT NTH CROSSRANGE
An array that contains the danger template, which is defined as the negative log of probability of survival per second. This is also referred to as the "danger rate" or the level of "danger." Each set of 20 elements in this array contains all the downrange or radius values for one crossrange or angle off boresight setting.

LOKD - MAXIMUM LOOK-DOWN ANGLE -- 0 to 90 DEG

If the air defense asset type is able to look-down, or see below
it's horizon (for example, from the top of a hill into a valley
below) then LOKD is the maximum angle the asset can depress it's
radar.

** THE FOLLOWING ITEMS ARE NOT MODIFIABLE BY THE USER **

IDC - RECORD CREATION DATE

IDM - RECORD MODIFICATION DATE

APPENDIX A - Detailed Descriptions of all RAIDES Menus

A.1 Air Raid Menus

AIR RAID MENU - SELECT ONE
AIRCRAFT BEDDOWN
SELECT ATTACK RAID
CURRENT ALTITUDE (f) = 1000
AIR RAID CURRENT DEFN PLAN
PROCESS CURRENT RAID
EXIT MENU

This menu allows you to perform operations which are directly related to the air raids. The air raids are stored in the RAID table. However, the air raids also depend upon a number of other tables, which include ACFT, BASE, PCOR, and TGT.

You can review the current enemy aircraft intel by using the AIRCRAFT BEDDOWN option. This function allows you to cluster the data by either aircraft type or base. The AIRCRAFT BEDDOWN menu will appear.

You can build the routes for the missions in a raid if you first select a raid using the SELECT ATTACK RAID option. This option allows you to pick from the current raids in the RAID table. This option also validates the selected raid, which means that the bases, targets, and aircraft in the raid's missions exist in the database. The ATTACK RAIDS menu will appear.

You may want to generate the raids for a particular AGL altitude, or you may want to re-generate the routes at a different altitude. In either case, you can select the penetration altitude for the air raid missions by using the CURRENT ALTITUDE option. The PENETRATION ALTITUDES menu will appear.

If you want to find weaknesses in your defense plan, you can copy the statespace for the most recently worked-on defense plan into the route generation statespace, and then re-build the routes. You can move a defense plan statespace by using the AIR RAID CURRENT DEFN PLAN option.

You can generate or re-generate the route(s) for the mission(s) in the currently selected attack raid by using the PROCESS CURRENT RAID option. The currently selected attack raid must have been validated with the SELECT ATTACK RAID option; the route generation function will use the currently selected penetration altitude. The RAID OPTIONS menu will appear.

ATTACK RAIDS -- SELECT ONE	
BIG RAID	FIRST WAVE OF ENEMY
NEW WAVE	FOLLOW-ON ATTACK
EXIT MENU	

This menu will display the ID and DESCRIPTION items of each air raid record in the RAID table.

After you select a raid, RAIDES will validate the raid data. If the data in the selected raid does not match data in other database tables, the message box will turn red and a message will appear which indicates the problem. You should write down the message and then, as the message indicates, hit the RETURN key.

For example, if the second mission in the NEW WAVE attack raid includes MIG-31 aircraft from HAIN base, the message will indicate there is a problem with mission two, the problem being that MIG-31s do not exist at the HAIN base. You should then use the database manager to either change the missions' aircraft from MIG-31 to FEN/E, since FEN/E are supported at HAIN (BASE table) or modify the HAIN base record (BASE Table) to include support of MIG-31 aircraft. Another possible database modification would be to remove mission two from the NEW WAVE raid record (RAID table).

After modification of the database, you should again try to select the NEW WAVE attack raid. You should continue this cycle of checking the attack raid and modifying the database until RAIDES returns you to the AIR RAID menu without any errors.

PENETRATION ALTITUDES -- SELECT ONE			
LEVEL	1	:	75 FEET
LEVEL	2	:	150 FEET
LEVEL	3	:	300 FEET
LEVEL	4	:	500 FEET
LEVEL	5	:	1000 FEET
LEVEL	6	:	1500 FEET
LEVEL	7	:	10000 FEET
EXIT MENU			

The options in this menu are the defined altitudes for the statespace. These altitudes are defined by the SYSAD during execution of the SUPR program. There are a maximum of seven altitudes.

Pay attention to the units of measure for the altitude.

The value for each altitude level is with respect to the earths' surface, i.e. the altitude above ground level (AGL) in feet or meters.

This menu allows you to select one of the defined altitudes; this altitude will be used for route generation of the missions in the raid.

RAID OPTIONS MENU -- SELECT ONE
ROUTE
SHOW
REVIEW
MANUAL
TIME PHASE
EXIT MENU

You can't select any option in this menu until you select the ROUTE option.

When you selected PROCESS CURRENT RAID from the AIR RAID menu, RAIDES generated the route(s) for the mission(s) in the currently selected attack raid. However, selecting the ROUTE option from this menu allows RAIDES to finish processing the missions and save the raid.

When the processing is completed, the RAID OPTIONS menu will reappear and you may select the other functions in the menu.

The SHOW option shows an overview of the mission(s) in the text window and displays the routes for the missions on the graphics monitor. The color of the route lines depends upon the altitude. The route lines may be two colors; depending upon the flight profile (PRFL item in BASE record), the altitude crossing the PCOR may be different than the altitude of the remainder of the route.

The REVIEW option allows you to analyze the effectiveness of the operational fire units in the defense plan statespace (that was used in the route generation statespace) against the complete route(s) for the mission(s). This function also shows the detailed flight path data. The TARGETS FOR RAID menu will appear.

The MANUAL option allows you to change the mission(s) manually. You can add or delete waypoints, or select a different penetration corridor. You can separately modify the ingress and egress portions of the route. As you modify the route, new performance data (including relative danger) is computed and displayed. The MISSIONS FOR MANUAL menu will appear.

The TIME PHASE option allows you to observe the relative positions of the aircraft at various points in time during the missions. You can select the initial viewing time and the time increment between views. The DEFAULT START TIME menu will appear.

TARGETS FOR RAID - SELECT MANY
REGNITZ
GEDERN
EXIT MENU

This menu contains all of the targets in the missions for the current air raid.

The options in this menu are toggle options. You can select none, one, or many targets in this menu.

If any targets are selected when you select the EXIT MENU option, then RAIDES will review them. The review appears in the text window and is also written to a file called ANALYSIS.REP. This file can be printed using TOOLS from the PAWS main menu, the FILE BROWSER option.

MISSIONS FOR MANUAL - SELECT ONE
HAIN / REGNITZ / TU-22M /
HAIN / GEDERN / TU-22M /
EXIT MENU

This menu contains all of the missions in the current raid. You may only select one mission at a time.

The MANUAL OPTIONS menu will appear after selection of a mission.

MANUAL OPTIONS - SELECT ONE
SELECT
INSERT
DELETE
EGRESS
OPT
FINISH
ABORT

This menu allows you to manually modify the existing route for the selected mission. Check the text window. It will show some of the current route data, such as total distance and total danger. Whenever you change the route, this data will also change.

The INGRESS/EGRESS option allows you to select which part of the route you wish to modify. The routes automatically generated by RAIDES, if they use the same penetration corridor, will have identical ingress and egress paths.

The FINISH option informs RAIDES that you want it to save the changes you made to the route and you want to return to the RAID OPTIONS menu.

The ABORT option informs raids that you don't want to save the changes and you want to return to the RAID OPTIONS menu. Given the ABORT option, you can use the MANUAL function to 'what if' routes.

If you want to modify a part of the route, you must first select the SELECT option. The cursor will appear on the graphics monitor. You should then select the waypoint (any of the '+' signs on the route) to be modified. RAIDES will automatically find the waypoint closest to the position of the cursor. Once the waypoint is selected, a small circle around the waypoint will appear.

Once a waypoint is selected, you can: insert a waypoint after the selected waypoint (on ingress), insert a waypoint before the selected waypoint (on egress), or delete the selected waypoint. For the insert modes, a message will prompt you to select the new waypoint. For the delete mode, the new route will be displayed.

The OPT option allows you to graphically select a penetration corridor, and then RAIDES will try to generate the ingress or egress portion of the route using the selected PCOR.

DEFAULT START TIME (HHMM)1249	DEFAULT TIME INCREMENT (MM) 15

This menu allows you to input the time parameters for viewing the missions in the air raid. This is a pop-up input menu.

You first enter the start time. The default, 1249 for example, is the earliest start time for any mission in the raid. After entering the start time (following the HHMM format; HH - hours, MM - minutes), hit the right-arrow key.

Then enter the time increment. The default is always 15 minutes.

To re-enter data in the other section, use the left-arrow or right-arrow keys to move between sections of this menu.

When you have entered the data, hit the RETURN key.

AIRCRAFT BEDDOWN	
SELECT :	BASES BOMBERS FIGHTERS HELICOPTER
DISPLAY :	BY BASE NAME BY AIRCRAFT TYPE
EXIT MENU	

You could review the AOB data by using the DATABASE SHOW option. However, it is sometimes useful to cluster the data into logical packets to help you visualize events of the battlefield.

This menu allows you show all aircraft at a particular base, or show the bases of a particular aircraft type. The sources of the information that RAIDERS displays are the ACFT and BASE tables.

To DISPLAY BY BASE, you should select the BASES option from this menu. The BASE menu will appear. After selecting the base(s) of interest, select the DISPLAY: BY BASE NAME option from this menu. The AIRCRAFT BEDDOWN - BY BASE menu will appear.

To DISPLAY BY AIRCRAFT TYPE, you should select one or more of the aircraft type options (BOMBER, FIGHTER, HELICOPTER) from this menu. The menu for the selected type will appear. After selecting the type(s) of interest, select the DISPLAY: BY AIRCRAFT TYPE option from this menu. The AIRCRAFT BEDDOWN - BY AIRCRAFT TYPE menu will appear.

BASE MENU -- SELECT MANY	
	HAINA AIR BASE ERFURT AIR BASE WALTERS AIR BASE EXIT MENU

The options in this menu are toggle options. The options in this menu are the bases currently in the BASE table.

You can select none, one, or many bases. The base(s) you select will be used to show types and quantities of aircraft.

AIRCRAFT BEDDOWN - BY BASE		
HAINA AIR BASE		
4	(FXH/A)	MIG 31/A FOXHOUND
8	(FEN/E)	SU 24 FENCER/E
10	(FBD/J)	MIG 21 FISHBED/J
WALTERS AIR BASE		
4	(FXH/A)	MIG 31/A FOXHOUND
5	(BKF/B)	BACKFIRE/B TU-26 B
10	(FBD/J)	MIG 21 FISHBED/J
EXIT MENU		

This menu shows you the quantities and types of aircraft currently at the selected base(s). This menu also shows you the LOCE name of the aircraft (for example, the Mig-21 Fishbed/J is FBD/J).

BOMBERS -- SELECT MANY
BACKFIRE/B TU-26 B
BLACKJACK
EXIT MENU

The options in this menu are toggle options.

This menu shows you the types of bomber aircraft currently in the database. You should select none, one, or many aircraft type(s).

The type 'bomber', as used in RAIDES, is determined by the LOCE DED.

FIGHTERS -- SELECT MULTIPLE
MIG 21 FISHBED/J
MIB 25 FOXBAT/A
MIG 27 FLOGGER/D
MIG 29 FULCRUM
MIG 31/A FOXHOUND
SU 27 FLANKER UNKOWN
SU 24 FENCER/E
SU 17 FITTER/D
EXIT MENU

The options in this menu are toggle options.

This menu shows you the types of fighter aircraft currently in the database. You should select none, one, or many aircraft type(s).

The type 'fighter', as used in RAIDES, is determined by the LOCE DED.

AIRCRAFT BEDDOWN - BY AIRCRAFT TYPE		
(BKF/B)		BACKFIRE/B TU26 B
5 -		WALTERS AIR BASE
(FXH/A)		MIG 31/A FOXHOUND
4 -		HAINA AIR BASE
4 -		WALTERS AIR BASE
(FEN/E)		SU 24 FENCER/E
8 -		HAINA AIR BASE
EXIT MENU		

This menu shows you the quantities and types of aircraft currently in your database, and the location of the aircraft. This menu also shows you the LOCE name of the aircraft (for example, the Mig-31 / A Foxhound is FXH / A).

A.2 Defense Plan Menus

DEFENSE PLAN MENU -- SELECT ONE
SELECT PLAN
SELECT/MODIFY UNITS IN PLAN
SHOW DEFENSES
SELECT AIR RAID
MOVE BRIGADE
MOVE BATTALION
MOVE BATTERY
MOVE FIRE UNIT
SAVE PLAN
LOS COMM
EXIT MENU

Some of the options in DEFENSE PLAN will have no functionality until you have selected a plan and deployed one or more fire units to sites; an example is SHOW DEFENSES.

The SELECT PLAN option allows you to add or delete defense plans, or select a defense plan for modification/processing. RAIDES can save a maximum of five defense plans at any time. A PLAN MUST BE SELECTED BEFORE THE OTHER OPTIONS WILL WORK CORRECTLY. The SELECT DEFENSE PLAN menu will appear.

The CHECK UNITS IN CURRENT PLAN option allows you to review or modify the selected defense plan. Units (Brigades, Battalions, etc.) may be added/subtracted from the plan. Units may also be selected individually or by defense type. The MODIFY DEFENSE PLAN menu will appear.

The SHOW DEFENSES option allows you to show the defense coverage provided by all of the fire units in the plan. You can show the coverage in terms of Max Range circles/sectors, Terrain Masks, or Defense Contours. You can also select the display altitude. The SHOW DEFENSES menu will appear.

The SELECT AIR RAID option allows you to select the Air Raid of interest. You may then display the missions in the raid or check the effectiveness of the operational fire units in your current plan against the missions.

The MOVE BRIGADE option allows you to show the coverage provided by a brigade's assets (->battalions->batteries->fire units), move the brigade headquarters, check the line of sight (LOS) between the brigade head- quarters and any location, and save the HQ location.

The MOVE BATTALION option allows you to show the coverage provided by a battalion's assets (->batteries->fire units), move the battalion head-quarters, check the line of sight between the battalion headquarters and any location, and save the HQ location.

The MOVE BATTERY option allows you to show the coverage provided by a battery's assets (->fire units), move the battery headquarters, check the line of sight between the battery headquarters and any location, and save the HQ location.

The MOVE FIRE UNIT option allows you to show the coverage provided by a fire unit, move the fire unit to a site, check the line of sight between the fire unit and any location, change the status of the fire unit, and save the location and status of the fire unit.

The SAVE PLAN option allows you to save the additions, deletions, or modifications you made to the current defense plan. **YOU SHOULD ALWAYS SAVE A PLAN IF YOU HAVE MADE ANY CHANGES TO IT BEFORE EXITING FROM DEFENSE PLAN.**

The LOS COMM option allows you to show the line of sight communication between any two user selected points. You may enter the points graphically or textually; a plot is displayed on the text monitor which shows the terrain and line of sight potential between the points. RAIDES assumes an antenna height of 3 meters at both points.

SELECT DEFENSE PLAN MENU – SELECT ONE ADD NEW PLAN DELETE PLAN ACTIVATE PLAN plan1_id plan2_id EXIT MENU

This menu allows you to perform operations on defense plans. The three operations are always in the menu, followed by the currently defined defense plans. The defense plan options in this menu are toggle options.

The ADD NEW PLAN option allows you to create a new defense plan. The ID FOR THE NEW DEFENSE PLAN menu will appear.

The DELETE PLAN option allows you to delete the defense plan that is currently selected. You must select one of the defense plans before using this function; a selected plan will be highlighted.

The ACTIVATE PLAN option informs RAIDERS that you want the selected defense plan to be restored from the disk file into memory; you may then modify or review that plan. You must select one of the defense plans before using this function; a selected plan will be highlighted.

ID FOR THE NEW DEFENSE PLAN
ENTER 1 to 8 chars

This menu is an input pop-up menu.

The ID of your defense plan must be at least one character, and the ID should be unique (among the current defense plan record IDs).

You may type in either uppercase or lowercase.

After you hit the RETURN key, the DESCRIPTION FOR THE NEW DEFENSE PLAN menu will appear.

DESCRIPTION FOR THE NEW DEFENSE PLAN
ENTER 1 to 24 chars

This menu is an input pop-up menu.

You should type in a description for the plan; you may leave the description blank.

You may type in either uppercase or lowercase.

RAIDES will then initialize the statespace for this defense plan and move it into the working area. After about one minute the MODIFY DEFENSE PLAN menu will appear.

MODIFY DEFENSE PLAN MENU - SELECT ONE
SELECT TYPES
SELECT BRIGADE
SELECT BATTALION
SELECT BATTERY
SELECT FIRE UNIT
SHOW CURRENT TYPES / UNITS
EXIT MENU

This menu allows you to review the units currently selected in your defense plan, as well as selecting or re-selecting the units in your defense plan. You may select the units individually or by type (such as Patriot).

The effects of all of the SELECT xxxxx options in this menu cannot be seen until you select the SHOW CURRENT TYPES/UNITS option.

The SELECT TYPES option allows you to add units to the defense plan based upon the type of unit (for instance HAWK). Units at every level (brigade, battalion, battery, and fire unit) will be selected if they match the type. The SELECT TYPES menu will appear.

The SELECT BRIGADE option allows you to add/subtract brigades and all of their subsidiary units to/from the defense plan.

The SELECT BATTALION option allows you to add/subtract battalions and all of their subsidiary units to/from the defense plan. The BATTALION DEFENSE menu will appear.

The SELECT BATTERY option allows you to add/subtract batteries and all of their fire units to/from the defense plan.

The SELECT FIRE UNIT option allows you to add or subtract individual fire units to/from the defense plan.

The SHOW CURRENT TYPES/UNITS option allows you to see a tabular listing of the units currently in the defense plan.

SELECT TYPES MENU – SELECT ONE OR MANY	
ALL TYPES	
HAWK	
VULCAN	
CHAP	
STINGER	
PATRIOT	
EXIT MENU	

This menu contains all of the air defense asset types in the DMDL table.

The options in this menu are toggle options. You may select none, one, or many types.

SELECTED UNITS/TYPES – SELECT ANY TO EXIT	
TYPES SELECTED	
CHAP	
BRIGADES SELECTED	
69TH	CHAP BATL
BATTALIONS SELECTED	
MOOK	CHAPS
FIRE UNITS SELECTED	
73RD	73RD CHAPARR
29TH	29TH CHAPARRAL
8TH	8TH CHAP
EXIT MENU	

This menu is not a standard menu; it is a listing of selected items. Selection of any item causes the MODIFY DEFENSE PLAN menu to re-appear.

For example, this table shows that as a result of choosing type CHAP the 69TH BDE, 20BN, battery MOOK and 73RD, 29TH, and 8TH fire units are now part of the defense plan.

BATTALION DEFENSE MENU – SELECT ONE	
ALL	
CLEAR	
11BN	
27BN	
98TH	
77BN	
20BN	
EXIT MENU	

This menu contains all battalions in the BATL table. The ID and DESCRIPTION of each battalion appears in the menu.

The two operations always appear at the top of the menu; the actual battalions appear below them.

The options in this menu are toggle options.

The ALL option allows you to add all of the battalions and their subsidiary units to the defense plan.

The CLEAR option allows you to delete all of the battalions from the defense plan. The subsidiary units are not effected.

MOVE FIRE UNIT - SELECT ONE	
1ST	1ST HAWK
73RD	73RD CHAPARRAL
EXIT MENU	

This menu contains the ID and DESCRIPTION of the fire units in the defense plan.

When you select a unit, you can move it to a site, check its line of sight communication, plot its defense coverage, or change its status. The FIRE UNIT menu will appear.

xxxx FIRE UNIT MENU - SELECT ONE	
SHOW FIRE UNIT COVERAGE	
MOVE FIRE UNIT	
LOS COMM	
STATUS:	NOT DEPLOYED
SAVE CHANGES	
EXIT MENU	

This menu contains operations which allow you to review and manipulate the deployment of the selected fire unit (xxxx).

The SHOW FIRE UNIT COVERAGE option allows you to plot the max range circle or sector, or the terrain mask for this fire unit if it has been deployed to a site. The SHOW DEFENSES menu will appear.

The MOVE FIRE UNIT option allows you to move a fire unit to a site. You can graphically move the fire unit or you can enter the site ID. The SELECT SITE menu will appear. After selection of a site, the status of the fire unit will become DEPLOYED.

The LOS COMM option allows you to show the line of site communication between the fire unit's current location and any other user selected point. The line of sight plot appears in a window on the text monitor. A green line on the graphics monitor connects the two points (marked by green '+' symbols).

The STATUS option allows you to change the operating status of the fire unit. This option is a toggle, and the possible statuses are NOT DEPLOYED, DEPLOYED and OPERATIONAL. A deployed fire unit occupies the site but it isn't operating (it's not set up yet, the radar isn't working, it's out of missiles, etc). An operational fire unit is heated up and ready to shoot.

The SAVE CHANGES option allows you to save any changes that have been made to the fire unit's location or status. IF YOU EXIT THIS MENU WITHOUT SAVING ALL CHANGES ARE LOST. Saving the changes makes the change permanent to the working defense plan, but at the DEFENSE PLAN menu you must save the working defense plan or all changes will be lost.

SELECT SITE MENU ~ SELECT ONE
MOVE GRAPHICALLY
MOVE TEXTUALLY
EXIT MENU

The MOVE GRAPHICALLY option allows you to move a fire unit to a site using the mouse. The site locations will appear on the map as white '+' symbols. A purple line emanating from the site indicates the PTL. The site ID will appear in white letters. If the site symbol and ID are in blue, then the site is already occupied and you cannot deploy to that site. RAIDES will select the site closest to the cursor location.

The MOVE TEXTUALLY option allows you to move a fire unit to a site by typing the site ID. The site locations will appear on the map as white '+' symbols. A purple line emanating from the site indicates the PTL. The site ID will appear in white letters. If the site symbol and ID are in blue, then the site is already occupied and you cannot deploy to that site. RAIDES will select the site closest to the cursor location.

Only sites that can support the current fire unit will be displayed.

SHOW DEFENSES MENU -- SELECT ONE
DEFENSE ALTITUDE = 457
MAX RANGE
TERRAIN MASK
EXIT MENU

All options in this menu are toggle options. You may have the terrain mask and max range features simultaneously displayed.

The DEFENSE ALTITUDE option allows you to change the AGL altitude used to display the terrain mask or max range circle/sector for the fire unit at the current site. You may enter any altitude. If the terrain mask and/or the max range circle is displayed and you change the altitude, these features will be re-computed and re-displayed for the new altitude.

The MAX RANGE option allows you to plot the max range circle/sector for the current fire unit at the current site location, for the AGL altitude.

The TERRAIN MASK option allows you to plot the terrain mask for the fire unit located at the current site, for the AGL altitude.

The terrain mask for the fire unit will be displayed in red polygon(s) on the graphics monitor.

The Max Range circle will be displayed by a colored circle/sector on the graphics monitor.

SHOW DEFENSES MENU -- SELECT ONE	
DISPLAY ALTITUDE =	457
MAX RANGE	
TERRAIN MASK	
CONTOURS	
EXIT MENU	

All options in this menu are toggle options. You may have the terrain mask, and/or max range, and/or contours features simultaneously displayed.

The DEFENSE ALTITUDE option allows you to change the AGL altitude used to display the terrain mask or max range circle/sector for the fire unit at the current site. You must select one of the seven penetration altitude. If the terrain mask, and/or the max range, and/or the contours are displayed and you change the altitude, these features will be re-computed and re-displayed for the new altitude.

The MAX RANGE option allows you to plot the max range circle/sector for the current fire unit at the current site location, for the AGL altitude.

The TERRAIN MASK option allows you to plot the terrain mask for the fire unit located at the current site, for the AGL altitude.

The CONTOURS option allows you to see the cumulative danger contours (or effects) of all operational fire units in the defense plan. The DANGER CONTOURS menu will appear.

The terrain mask for the fire unit will be displayed in red polygon(s) on the graphics monitor.

The Max Range circle will be displayed by a colored circle/sector on the graphics monitor.

The danger contours are polygons, where level of danger is represented by a different color. The lighter the color, the higher the danger to the enemy aircraft. The colors range from dark blue to white.

DANGER CONTOURS
ENTER NUMBER OF LEVELS (0-6)

This menu is a pop-up input menu.

You must type in the number of contour levels desired. If you enter zero, then the number of levels will be unchanged from the last time you displayed danger contours. If you enter a non-zero number, another menu will appear and you will have to enter the levels. The levels must be between 0.0 and 1.0.

If your levels are too high, you will not see any contours. Usually a good range of values is between 0.0005 and 0.20.

A.3 LOCE Menus

PASTRES FILES
14
15
16
EXIT MENU

PASTRES files come from LOCE, which is an intel system in Europe. When you request data from LOCE, a PASTRES.XX (where xx is a number between 0 and 31) file is created to store the data. RAIDES reads these PASTRES files. This menu shows the XX portion of the file name.

You should select the file which you want processed into RAIDES. Currently, RAIDES is only able to read Air Order of Battle (AOB) data, which

is where the enemy aircraft are located, how many aircraft, and what type of aircraft.

After you select a file, RAIDES will attempt to process that file. When the processing is finished, a message in the banner will give the name of the PASTRES file which was processed, how many records (LOCE Entity- Data-Records, or EDRs) were read from the file, and how many of those were merged into the RAIDES data base. In this example the message is:

MERPAS17: COMPLETED PASTRES.14:
2 RECORDS READ; 2 RECORDS MERGED.

Since all the records were merged (no errors), the message will appear in green. Had there been any errors, the message would have appeared in red.

If the error message indicates that the "subject type", example TANK, of this EDR, was not found in the LOCE Data-Element-Dictionary (DED), file DED.DAT, then there is no further attempt to merge this EDR into the database.

If the error message indicates that aircraft type, example BGR/A, of this EDR, was not found in the ACFT table, then there is no further attempt to merge this EDR into the database.

If the error message indicates that the base name, example BADLOC, of this EDR, was not found in the BASE table, then RAIDES will attempt to identify the base by searching the BASE table for a base whose location is in proximity to the location (latitude, longitude) given in this EDR.

If the error message indicates that the update date of this EDR is earlier than the update date of the data currently in the database for the entity of this EDR, then there is no further attempt to merge this EDR into the database.

After the message, the RAIDES main menu will re-appear.

You can examine the database using the DATABASE SHOW option. The PASTRES data is merged into the BASE table.

APPENDIX B - Helpful Hints or What To Do If You Get Stuck

Unfortunately, something must be wrong or you wouldn't be here. This appendix is the last resort, as you should have exhausted the other parts of this manual. Remember, for problems that appear to be menu related, Appendix D will be helpful.

B.1 You are completely and totally stuck.

Hint 1: You are stuck and this manual appears to offer no solution.

Ask another RAIDES user or your SYSAD.

If they can't help, call the JTF field service representative.

If the field service rep says it is a RAIDES problem, not a PAWS hardware or software system problem, then call the following number to contact SCT.

In the US:	800 227-1910
SCT/Palo Alto (from FRG):	0130-81-1056
(toll free)	
SCT/Kapaun (ETS):	480-6013

Ask for the MED department. When you get the MED secretary, ask for someone who knows about RAIDES.

B.2 You are at a menu and can't figure out what to do next.

Hint 2: You are at a menu and can't figure out what to do next.

The EXIT MENU option is always a safe choice. This option always takes you to the previous menu.

If you don't want to leave the menu, look up the menu in Appendix A. Appendix A provides a detailed description of each option in every RAIDES menu. Then select one of the options. The worst thing that can happen is either that nothing happens or you find a bug in the software.

B.3 What is "the PAWS documentation"?

Hint 3: There are many references to "the PAWS documentation." Where is this documentation?

Each user should have a copy of the PAWS documentation, which is produced by JTF and distributed when you receive training on the PAWS.

The PAWS documentation should provide detailed instructions for setting up the PAWS hardware, starting up and shutting down the PAWS, and using the non-APPLICATION options available from the PAWS main menu.

If you don't have a copy of the PAWS documentation, contact your SYSAD or the JTF field service representative.

B.4 The text monitor went black, and there is some text on it.

Hint 4: The text monitor went black, and there is some text on it.

You may have accidentally hit the F2 function key. If you hit the F2 function key again, the monitor should return to normal (blue with menus and windows on it).

If the monitor is still black, then the machine 'dumped'. This means that the computer shut itself down. Something bad happened, and it probably wasn't your fault. You should write down what you were doing when it dumped and give this info to the JTF field service rep. The field service rep may ask you what data is on the monitor. You will probably have to shut down your PAWS and attempt to re-boot it.

B.5 The cursor doesn't appear to be on the correct monitor.

Hint 5: RAIDES is telling you to select something on the graphics monitor, using the mouse, but the cursor symbol (the crosshair) does not appear anywhere on the screen.

Check the message area in the banner to make sure that RAIDES wants you to graphically select something.

Move the mouse and watch the graphics monitor for motion. The motion of the cursor may help you find it.

Is the cursor symbol on the text monitor? Now look at the banner on the text monitor, immediately to the left of the time/date area. Is there a black 'G' in that section? If not, look at the blue background of the text monitor for a small white box with a black 'G' in it. Either of these 'G' indicate that the cursor should be on the graphics monitor, not the text monitor. To get the cursor on the other monitor press the F4 function key twice.

B.6 The computer doesn't seem to be doing anything.

Hint 6: The computer doesn't seem to be doing anything, and the only thing on the text monitor is the text window.

The text window could be waiting for input. Check the message section of the banner.

You could be in the DATABASE menus, which function only in the text window.

The pop-up menu could be hidden by the text window. Place the cursor over the small white box (which is in the top left corner of the black title bar at the top of the window) and press the left mouse button. A small pop-up menu should appear. Select the PUSH BEHIND option. If the pop-up menu was behind the text window, it should now appear on top of the text window.

RAIDES is busy computing something and it is not ready for your input, thus it hasn't made the menu re-appear. Relax.

B.7 You typed data and nothing appears in the menu.

Hint 7: I typed data and nothing appears in the menu.

If you are logging onto the PAWS, and you are typing your password, then this is normal. This result is a security precaution.

If the menu is a pop-up input menu, then place the cursor in the top section of the menu (the black title bar) and press the left mouse button.

For text menus, if you are instructed to input data, or an error condition is noted in the message (and thus tells you to 'hit the RETURN key'), you must make sure the text window is active. You cannot type information into the text window if it is not active.

You can tell if the text window is active by looking at the cursor box in the lower left corner of the text window. The window is active if the cursor box is solid black and blinking. An inactive window has a hollow box or a non-blinking box.

If the cursor box is not black, then position the cursor somewhere in the text window and press the left mouse button to activate the window. The cursor box should be black and blinking.

If the cursor box is black and not blinking, then press the F1 function key at the top left of your keyboard. The F1 function key toggles the scrolling state of the text window; if the cursor box is not blinking then the text window is frozen until you hit the F1 key again.

APPENDIX C - Glossary of Terms and Abbreviations

AAA.....	Anti-aircraft Artillery
ACCESSIBLE NODE.....	A node which can be reached directly from another node.
ACCESSIBLE NODES BOX...	A rectangular area containing all of the nodes which can be reached from a given node. Used by the DPA when building arcs.
ACFT.....	Table containing performance information for enemy attack aircraft.
ACO.....	Airspace Coordination Order
ADCCS.....	Air Defense Command and Control System; located in Huntsville, Alabama, they provide funding and direction for RAIDES.
AGL.....	Altitude Above Ground Level
AI.....	Air Interdiction
ARC.....	Path between two nodes, used in reference to building automated routes for the air raids.
BAL.....	Battlefield Air Interdiction
BIT.....	Smallest component of computer data storage, it is either a zero or one. Strings of bits, such as a byte, represent data on the computer.
BYTE.....	Name of file containing byte-packed terrain elevation data. In computer-ese, a byte is eight bits of information; one byte can store a single alphanumeric character.
CAB.....	Corps Aviation Brigade
CAS.....	Close Air Support
COOKIE-CUTTER TEMPLATE.....	A circular uniform lethality model for a defense asset.
CONTOUR MAP.....	Graphic displays of terrain heights and danger. Lines are plotted to show regions of equal value at user-defined increments.
CPU.....	Central Processor Unit or the brain of the computer.
DANGER.....	A quantitative representation of our defense assets to a penetrating aircraft at a location. Mathematically, the negative of the natural logarithm of the combined probability of survival per second multiplied by 100.

DCL.....	DEC Command Language
DEC.....	Digital Equipment Corporation
DED.....	Data Element Dictionary; a LOCE file which contains the standard names for valid LOCE subject types, for example FBD/J is the name for Fishbed/J.
DEFENSE MODEL.....	A data structure which contains generic information about a specific type of defense, which allows the computer to model the capability of the defense.
DOD.....	Department of Defense
DPA.....	Dynamic Programming Algorithm, which is a technique to generate the minimum cost path between two points.
DTED.....	Digital Terrain Elevation Data, which is data from Defense Mapping Agency (DMA) which provides elevation for points on the globe; RAIDES uses DTED Level I, which is an elevation sample for points separated by 100 meters in latitude and longitude.
EGRESS.....	The portion of the route that begins after the mission has struck the target, and ends when the aircraft lands at the recovery base.
ENVELOPE.....	A region defining the maximum range of a defense asset. Because of terrain masking and other factors, some areas of the envelope contain no danger from that asset.
EVENT.....	The numeration of points along a route where "something happened," such as a turn point or a change in altitude.
EW.....	Electronic Warfare
EW/GCI.....	Early Warning/Ground Control Intercept Radar
FLOT.....	Forward Line of Own Troops
GCI.....	Ground Control Intercept Area
HQ.....	Headquarters
ID.....	Identification, in RAIDES, ID usually refers to the name of a record in a database table.
IFF.....	Identification Friend or Foe, a system which allows friendly aircraft to operate safely in friendly airspace by informing friendly air defense assets of their status.
IFF-OFF.....	Line parallel to FLOT where IFF is turned off during penetration of enemy airspace; the aircraft do not want to emit unnecessary radiation to the enemy.

IFF-ON.....	Line parallel to FLOT where IFF is turned on during return to base.
INGRESS.....	The portion of the route that begins when the aircraft powers up the engines and ends after the target has been struck.
JTF.....	Joint Tactical Fusion
JTFPMO.....	Joint Tactical Fusion Program Management Office; located in McLean, Virginia, they developed the PAWS and they oversee the system aspect of it.
LEG.....	A segment of a route between consecutive turn points.
LOCE.....	Linked Ops-Intel Centers Europe; a computer network of intelligence data which, among other things, can be accessed via the PAWS and fed into RAIDES.
MEGABYTE.....	One million bytes; Megabyte is the standard unit when referring to computer memory or storage. The representation of a single character a computer requires one byte.
MICROVAX II.....	32 bit computer on which the PAWS workstation is based.
MINIFIED.....	Digital map data which has been subsampled and compressed to allow a larger area of coverage to be displayed.
MIPS.....	Million Instructions Per Second, which gives the relative speed of the computers' CPU.
NATO.....	North Atlantic Treaty Organization
NODE.....	Significant route points which are joined together by RAIDES to form arcs and then routes. Specifically, they are bases, targets, FLOT, and penetration corridors.
OCA.....	Offensive Counter Air
OO.....	Operations Order
PA.....	Probability of Arrival of Penetrating Aircraft.
PAWS.....	Portable ASAS/ENSCE Work Station
PK.....	Probability of Kill of Penetrating Aircraft.
POL.....	Petroleum, oil, lubricant
PS.....	Probability of Survival of Penetrating Aircraft.
RAIDES.....	Rapid Air Defense Evaluation System; a rapid prototype software effort developed by SCT that will help determine the requirements for the next generation of automated air defense planning tools.
RCS.....	Radar Cross Section
ROZ.....	Restricted Operating Zone

SAM	Surface-to-Air Missile System
SASN	The arrays containing the single altitude statespaces used in the route generation algorithms.
SCALAR	A data structure containing only a single element.
SCENARIO SPACE	The entire geographical region under consideration during a RAIDES session.
SCL	Standard Configuration Load (Aircraft Weapons Load).
SCT	Systems Control Technology, Inc.; headquartered in Palo Alto, California, SCT develops and supports RAIDES.
STATESPACE	Eight-directional 3-dimensional grid system which contains the danger from the active defense assets in the current defense plan. Used to determine cost of travel from one cell to another, and is displayed as danger contours.
STATESPACE CELL	A geographic and altitudinal region (or box) in which the probability of surviving defenses has been quantified.
STR	Software Trouble Report; a form you should fill out when you find a bug in the system or when you have a suggestion.
SUPR	Statespace Update Program; a program in the RAIDES system that allows the SYSAD to change the scenario data or modify the defense models.
SWCH	A data construct which provides the RAIDES program with information about how it is currently configured.
SYSAD	System Administrator; the person responsible for defining system level data which impacts daily users, such as new user accounts, defense model parameters, or scenario boundaries.
TERRAIN FOLLOWING	A mode of flight for an air vehicle having constant clearance over the terrain.
TERRAIN MASKING	The impact of terrain on the capability of a fire unit to see or engage enemy aircraft; terrain masking reduces the overall coverage or envelope of the defense asset.
TF	Terrain Following
TOT	Time on Target
UTM	Universal Transverse Mercator
VAX	A line of 32 bit DEC computers.

VECTOR..... A data structure which contains many
elements.
VMS..... An operating system for VAX computers.
WAYPOINT A point on a route where one or more of the
flight parameters change (for example, heading
or altitude).
WFZ Weapons Free Zone

APPENDIX D - About the Menus

Paragraph 1.5 provided basic instructions for how to use pop-up and pull-down menus. Questions may arise about other aspects of the menus, and some of these questions are answered in this appendix. In addition, there are two other types of menus: pop-up input menus and text menus.

D.1 What if I select the wrong option and reach the wrong pop-up menu?

Most pop-up menus have an EXIT MENU option. Select this option to return to the previous menu. If the pop-up menu is an input menu, hit the RETURN key.

D.2 What happens to the pop-up menu when I select an option?

Most pop-up menus will disappear when you select an option. The difference in the menus is how long it takes for the menu to re-appear. Some menu options only select or toggle the option, while other options process information. The menu will quickly re-appear for the toggle options. The options that process information will not make the menu re-appear until the processing is completed.

D.3 If several pop-up menus appear on the monitor, how do I know which one to use?

Suppose you have two pop-up menus on the text monitor. Place the cursor over any option in the first menu. What does the cursor look like? Now place the cursor over any option in the second pop-up menu. What does the cursor look like?

In general, the cursor will look like an egg-timer when it is in an inactive pop-up menu. You can't select any option in an inactive window. The cursor will be the arrow in the one and only active pop-up menu.

D.4 What if the text window covers the active pop-up menu, or vice-versa?

Think of the menus and windows of the text monitor as a deck of cards. You can hold the cards such that only portions of each card are visible; to see an entire card you place it at the top of the deck.

To move a menu to the top, place the cursor in the black title bar (at the top of the menu) and press the left mouse button.

To move a text window to the top, place the cursor in the black part of the black bar (at the top of the window) and press the left mouse button.

D.5 What if the computer doesn't seem to be doing anything, and the only thing on the text monitor is the text window?

The text window could be waiting for input. Check the message section of the banner.

You could be in the DATABASE menus, which function only in the text window.

The pop-up menu could be hidden by the text window. Place the cursor over the small white box (which is in left corner of the black title bar at the top of the window) and press the left mouse button. A small pop-up menu should appear. Select the PUSH BEHIND option. If the pop-up menu was behind the text window, it should now appear on top of the text window.

RAIDES could be busy computing something, and it isn't ready for your input so it hasn't made the menu re-appear. Relax.

D.6 How do the example text inputs relate to the menus? What is <S7>?

The examples given in the step-by step procedures of this manual follow a particular format. When a step indicates that you should type something, you will obviously use the keyboard. Suppose the instructions say, "Type <S7>."

For keyboard input, the instructions enclose your input in triangular brackets. Do not actually type the brackets, but do hit the carriage return (RETURN) key. For example, <DE> means you should hit the D-key, the E-key, and the RETURN key. You may type in either lowercase or uppercase letters.

Regardless of the type of input menu, the data you type on the keyboard should appear in the menu.

D.7 What if I type data and nothing appears in the menu?

If you are logging onto the PAWS, and you are typing your password, then this is normal. This result is a security precaution.

If the menu is a pop-up input menu, then place the cursor in the top section of the menu (the black title bar) and press the left mouse button.

For text menus, if you are instructed to input data, or an error condition is noted in the message (and thus tells you to 'hit the RETURN key'), you must make sure the text window is active. You cannot type information into the text window if it is not active.

You can tell if the text window is active by looking at the cursor box in the lower left corner of the text window. The window is active if the cursor box is solid black and blinking. An inactive window has a hollow cursor box or a non-blinking box.

If the cursor box is not black, then position the cursor somewhere in the text window and press the left mouse button to activate the window. The cursor box should be black and blinking.

If the cursor box is black and not blinking, then press the F1 function key at the top left of your keyboard. The F1 function key toggles the scrolling state of the text window; if the cursor box is not blinking then text window is frozen until you hit the F1 key again.

D.8 What if I type the wrong thing?

You can use the backspace key (either BACKSPACE or <-) key to delete mistakes. This key is above the RETURN key. As you backspace over characters, the characters should disappear.

D.9 How do I know exactly what type of input to type?

Most input menus indicate what type of input they want and the format. For example, when you login to the computer, the PAWS eventually asks you to enter the date and time. The PAWS provides the exact format for your input. Be sure that you follow the format specifications exactly.

D.10 What if I accidentally reach a text input menu and don't want to continue?

If you accidentally reach a pop-up input menu, then only hit the RETURN key to get back to the previous menu. If this occurs in a text menu (in the RAIDES database), type <S8> to get to the previous menu. You could type <S7> which would cause the RAIDES main menu to appear.

D.11 How do text menus in the Database Manager work?

With the exception of the database function, the RAIDES program is entirely pop-up menus. The database manager, however, is accessed solely through text menus. Text menus appear inside the text window, which is the large white box on the text monitor (Figure 1.5-1). Your input device to the text menus is the PAWS keyboard. RAIDES presents all database information to you in the text window.

The Database main menu is depicted in Figure D.11-1. These text menus have several sections.

The section above the top dashed-line is information about the menu. At the far left is the menu name. In the center is what RAIDES wants from you. At the right is the current page number, and the number of pages in the menu.

The center section of a text menu indicates what options are available to you. For example, you could add a record to a table.

DATA BASE	:	SPECIFY DATA BASE OPERATION	P. 1 OF 1
F1--DONE	-	DONE WITH DATABASE OPERATIONS	(/)
F2--ADD	-	ADD A RECORD TO A TABLE	(AD)
F3--DELETE	-	DELETE RECORD(S) FROM A TABLE	(DE)
F4--CHANGE	-	CHANGE RECORD(S) FROM A TABLE	(CH)
F5--COPY	-	COPY A RECORD IN A TABLE	(CO)
F6--SHOW	-	SHOW RECORD(S) OF A TABLE	(SH)
F7--REPORT	-	CREATE OR MODIFY A REPORT	(RE)
F8--WRITE	-	WRITE CONTENTS OF DATABASE TO OUTPUT FILE	(WR)
S1--HELP	:S2--NEXT PAGE	:S3--GO TO 1ST PAGE	:S4--FIND A STRING
S5--GO TO PAGE	:S6--GRAPHICS ON/OFF	:S7--MAIN MENU	S8--MENU BACKUP

Figure D.11-1 The Database Main Menu

The bottom section is the boilerplate. This means that this section never changes. The key features of the boilerplate are:

1. If your menu has more than one page, you can view other pages of the menu by typing <S2> or <S3>.
2. If you want to backup to the previous menu, you should type <S8>. This function is similar to the "EXIT MENU" option in pop-up menus.
3. If you want to skip all the way back to the RAIDES main menu, type <S7>.

Suppose you want to add a record to the database. You can select this option from the text menu in one of three ways:

1. Type the menu key identifier, which is in the second column of the menu. You would type <ADD>.
2. Type the two character abbreviation, which is in the last column of the text menu. You would type <AD>.
3. Type the function key descriptor, which is in the first column of the menu. You would type <F2>. You cannot press the F2 function key.

The third option is the worst. It is easier to learn the database if you remember the option you want to select rather than the function key.

D.12 How do I select or type items that have a blank space in the name?

Suppose you have a text menu, and you want to select the item "TEST ITEM". If you type <TEST ITEM>, the database will not recognize your choice. Items that have a blank space need to be enclosed with double " " marks. The double " " marks tell the database that the input is one item. Thus, you should type <"TEST ITEM">.

D.13 How does type ahead work in the database text menus?

In the previous example, you need to enclose the item with double " " marks to let the database know that the input is one item. The database allows you to type ahead, and it uses the blank space to separate commands.

What does type ahead mean? Look at the examples in 3.2. Suppose you want to add a record to the BASE table. If you select the DATABASE option from the RAIDES main menu, the DATABASE menu (Figure D.11-1) will appear.

From the examples you can conclude that whenever you enter the database, you usually perform the following steps:

1. Select a database operation
2. Select a database table
3. Select a record from the table
4. Select the items from the record

So, to type ahead at the DATABASE menu in order to add a new base, you MIGHT type:

```
<AD BASE "JF ONE" "DESCRIP OF BASE" 523000.0N 0130200.0E HIGH 0  
0 "UNKNOWN PARENT BASE" "123189:0600">
```

This type-ahead command added a record to the base table. The base ID is JF ONE, and the base is located at 523000.0N 0130200.0E. Check the BASE table description of Section 4 to determine the other parameters.

You could also type ahead only part of the data, such as:

```
<AD BASE "JF ONE">
```

The database would then prompt you for the remaining data.

You would then type <S7> or several <S8> to continue.

APPENDIX E - Maps

E.1 Maps

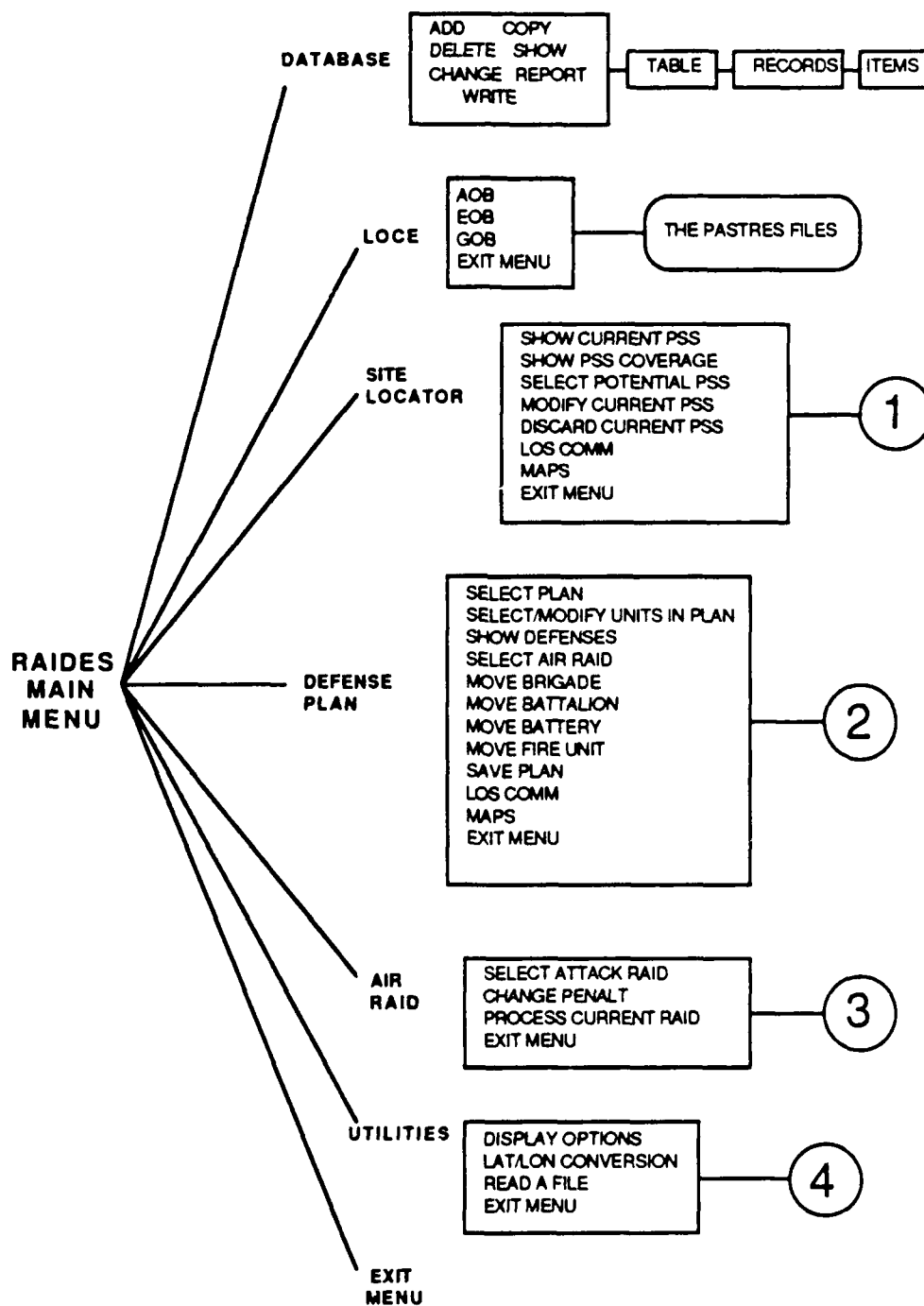
This option allows you to adjust the map display. When the MAPS option is clicked on, the MAPS ADJUST menu appears.

1. 0.5 X ZOOM, 0.75 X ZOOM, 1 X ZOOM, 2 X ZOOM, and 3 X ZOOM -- These options zoom to the specified magnification of the current map scale. The zoomed area is centered on the current map.
2. SCENARIO -- This option puts a minified mosaic of the largest scale map (usually 1:1M) including the entire scenario area of interest. To display the entire scenario, click on the SCENARIO option.
3. 1M MAP, 500K MAP, and 50K MAP -- These map scales depend on the location. For example, there may not be a 50K map at a certain location. To change the map to a desired map scale, click on the map scale. If you do not have any maps of a particular scale, that scale will not appear in the menu.
4. INTENSITY -- This option allows you to change the map display intensity. You must enter a number between 0.01 and 0.99 for the intensity level. It is a good idea to lower the map intensity to make the overlying graphics more visible.
5. JUMP TO -- This option allows you to input a new latitude/longitude or UTM for the center of the map.
6. ROAM -- ROAM allows you to move the map slightly in one of eight directions: North, South, East, West, Northeast, Northwest, Southeast, and Southwest.
7. LOCATION -- LOCATION allows you to graphically select a point and then returns the latitude/longitude or UTM and the elevation of the point.
8. GRAY MAP -- GRAY MAP toggles the map background between a color map and a gray tone map. It is useful for making the overlying graphics stand out.

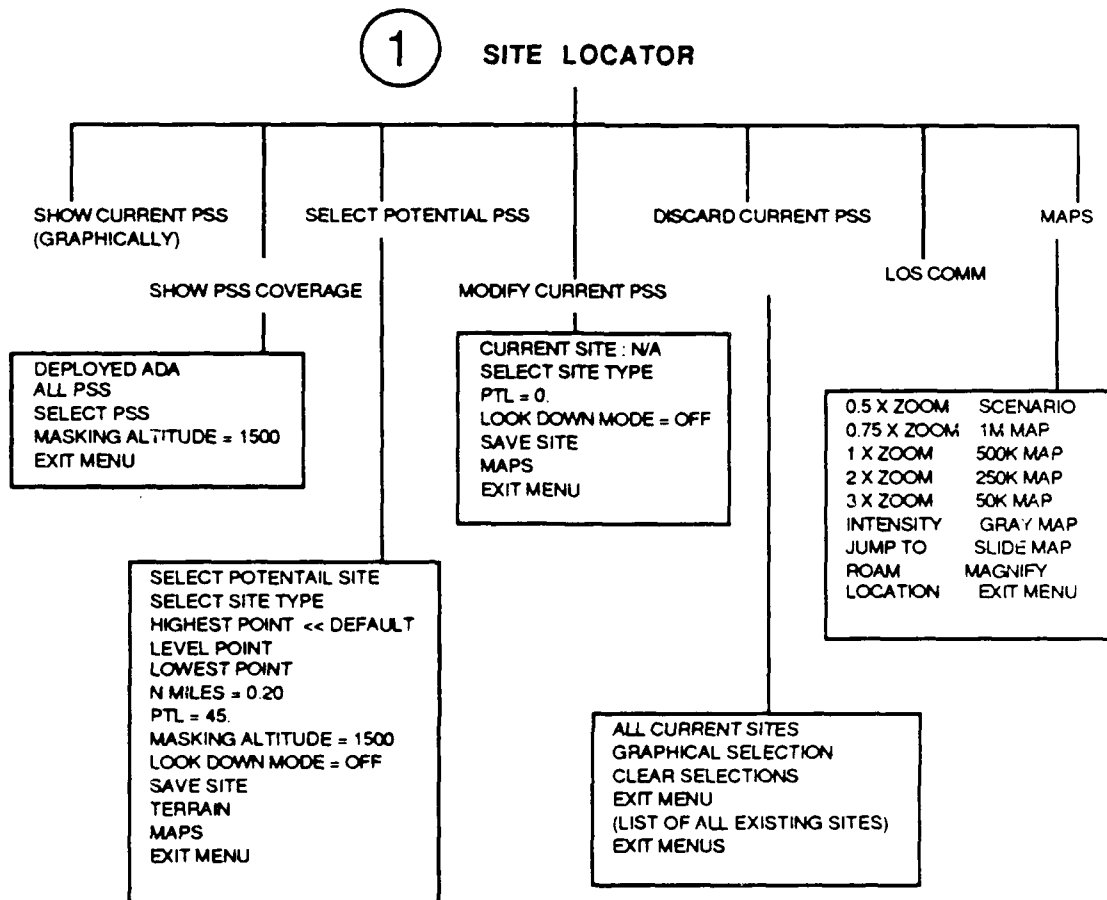
9. SLIDE MAP -- SLIDE MAP allows you to move the map by graphically selecting two points; the first point is the point to be moved, and the second point is where the user wants that point to appear on the display.
10. MAGNIFY -- MAGNIFY creates a cursor area in which the digital map (at the current scale) is magnified. Clicking the left mouse button causes the whole screen to zoom to a 2X of the current map. Clicking the center mouse button causes the map to return to the normal 1X zoom. Clicking the right mouse button causes an exit from magnify. When the map is zoomed in magnify, the classification is shown over the cursor box, and the display and cursor roam over the entire map picture.

APPENDIX F - Quick Reference to Menus

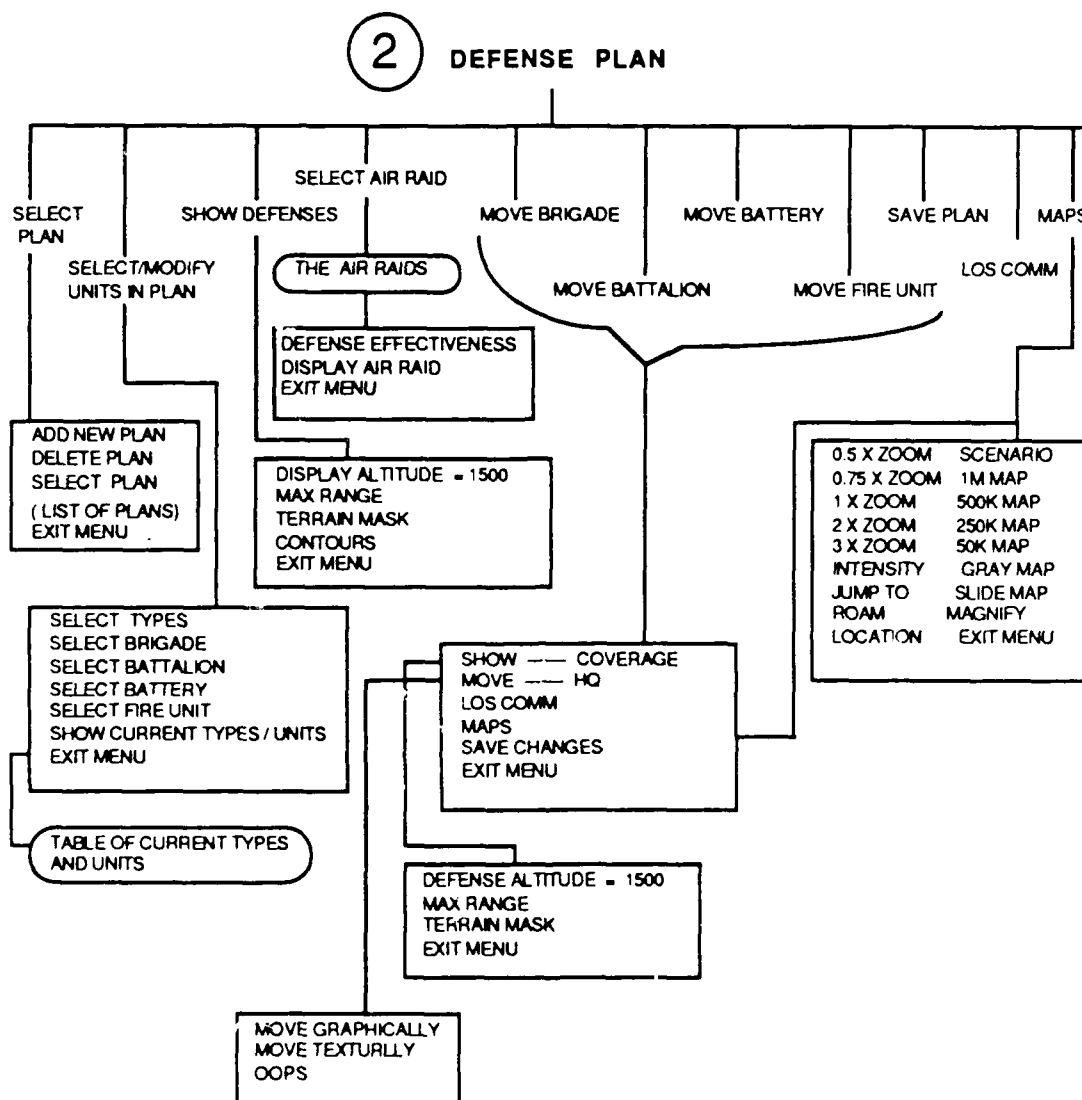
F.1 RAIDES Main Menu



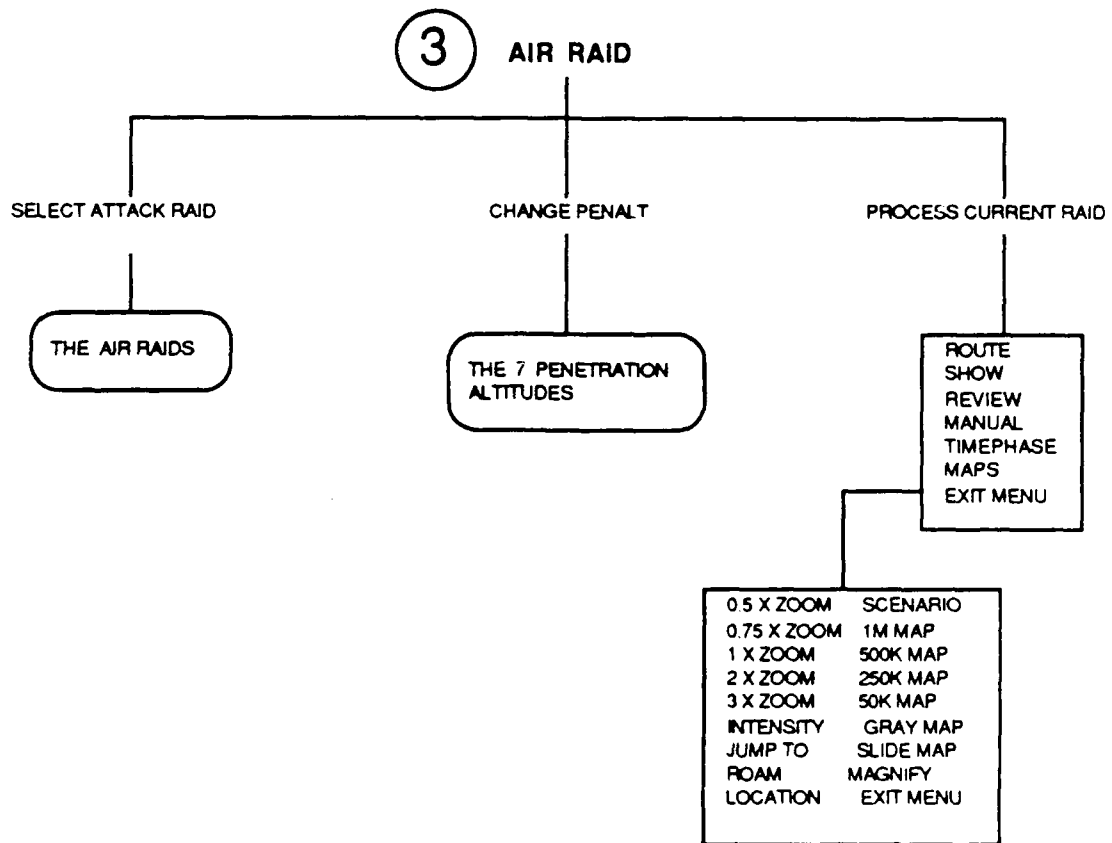
F.2 Site Locator Menu



F.3 Defense Plan Menu



F.4 Air Raid Menu



F.5 Utilities Menu

